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LIGNEOUS PHLEGMON OF THE ABDOMINAL WALL *

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It is probable that this disease has been observed under some name or form more frequently than has been reported. Prior to Reclus' publication and report, in 1893, of five cases which he denominated ligneous phlegmon of the neck, nothing seems to have been known of this severe, protracted and still little understood disease. Since that time professional interest has been enlisted and broadened, and in the last five or six years, especially, substantial additions have been made to the subject in case reports and contributions. Still the literature, though it is interesting and instructive, is not replete in quantity, nor entirely satisfactory as to etiology, bacteriologic findings and treatment.

These reports and investigations lead the way to a final explanation of the disease, which at the present time is the most interesting and unusual, if not curious and erratic, manifestation of infection, or inflammation, with which we have to deal. Surgical text-books, such as Lexer and Bevan, Keen and Dacosta, have very brief allusions to the subject, which are not of much value because little of a definite character was known when the articles, though of recent date, were written. It is now known that, though observed more frequently in the neck, it may occur in any part of the body.

The periodical literature is more recent and valuable and is worthy of attentive consideration. The article by Powers of Denver[1] on "Woody Phlegmon of the Neck" (Reclus), with a report of three or four cases, read before the Section of Surgery of the American Medical Association at Los Angeles in 1911, is a valuable contribution and interesting in its full bibliography. A case was reported later in the year by Panzer.[2]

An examination of the literature of the past year reveals but a few cases, and if we except those occurring after herniotomy, there remain but two or three cases of phlegmon of the abdominal wall. The report of E. Wyllis Andrews[3] on "Desmoids Following Herniotomy" probably refers to woody phlegmon.

In 1912, Todd, of St. Joseph, Mo.[4] reported a case of woody phlegmon which occurred in a young woman and was supposed to be due to trauma from a fall occurring in May, 1909. A tumor developed and was first observed in March, 1910. May 16, 1911, the central part of the tumor was removed, with no substantial or permanent improvement. The clinical record showed a loss of weight of 21 pounds in one year; partly on account of this and failing strength a diagnosis of sarcoma was made. Further observation of the case showed this to be an error, while the pathologic report showed only inflammatory changes in the muscle, with a large amount of granulation tissue, lymphoid plasma cells and polymorphonuclear leukocytes, complicated with "tiny abscesses." The abdominal wall was extensively involved. During the course of the disease, none of the usual signs of inflammation were present, only progressive, indurated, board-like swelling with sharply defined edges. Finally after two years, staphylococcic vaccines were used, but the administration and effect were not reported. The patient was reported well after two and one-half years. The history and progress were quite typical of this disease. No specific germ or known constitutional disease was discovered or believed to exist in the case.

In the last year or two, the Italians seem to have been the most active in the investigation of the disease. In 1912, Fasana[5] reports twelve cases of ligneous phlegmon; two of the cases occurred during the progress of chronic appendicitis and were presumably in the abdominal wall; others occurred in the gluteal region, foot, etc. "Predisposing causes were bad health and trauma. Such hard masses in the abdominal wall may be mistaken for malignant disease. The only pathognomonic sign is extreme hardness, diffuse or nodular; the skin is not early involved; pain, tenderness and fever are usually slight. The diagnosis is extremely difficult even where such a condition is suspected. Time alone can clear the matter up. The greatest difficulty is to differentiate from malignant tumor, which is important as to operation. Hyperleukocytosis favors phlegmon. Slow absorption or final suppuration may take place."

In 1912, Guasoni[6] reported a case in a man aged 52. His personal history was negative. He was operated on for oblique inguinal hernia of the left side. "Over a month after leaving the hospital, the patient noticed a hard swelling at the upper end of the operative scar. It grew to the size of a turkey egg, extending downward and toward the median line. He was treated for a month with cold applications and *x*-rays. The swelling softened a little but there was no change in the size, and no area of tenderness or fluctuation. The growth was excised and the patient went home well in three weeks. There was no pus. Histologically, there was an inflammatory new growth with polymorphonuclears and

* Read before the Chicago Medical Society, Feb. 19, 1913.

1. Powers, Chas. A.: Woody Phlegmon of the Neck (Reclus), THE JOURNAL A. M. A., July 29, 1911, p. 365.
2. Panzer, E. J.: Woody Phlegmon of Reclus, THE JOURNAL A. M. A., Nov. 25, 1911, p. 1762.
3. Andrews, E. Wyllis: Desmoids Following Herniotomy, read before Western Surgical Association, December, 1910.
4. Todd, Luther Anson: Obscure Infiltration of the Abdominal Wall, Jour. Missouri Med. Assn., February, 1912.
5. Fasano: Flemmone ligneo et tumori infiammatori, Gazz. d. osp., Oct. 27, 1912, p. 1345; abstr. THE JOURNAL, Nov. 30, 1912, p. 2013.
6. Guasoni: Case de flemmone ligneo, Policlinico, 1912, No. 43, p. 1553.

plasma cells. Bacteriologically, there were small Gram-negative cocci, with no characteristic grouping. In broth culture they increased in size and the grouping was more characteristic of staphylococci."

Consentino[7] reports four cases, two in patients aged 57 and 46, following hernia operations. In these there were swellings, fibrous and immovable, large as a lemon, not well defined and non-adherent to the skin. There was little fever. Pain and swelling were manifested ten days to two weeks after operation. Patients were confined to bed three or four weeks and treated by hot applications of normal salt solution, which diminished the pain and induced some decrease of swelling. There was no suppuration, and no incision of inflamed mass in either case. Convalescence lasted two or three months. The other cases reported were stomach cases. I have purposely omitted any reference to these cases for the reason that the clinical history and pathology of such cases do not, with our present knowledge, seem consistent with the better and more conclusive evidence concerning woody phlegmon of the neck and abdomen.

In 1910, Duse[8] contributes a case as follows: There was nothing of importance in previous history. A boy of 15 was operated on for inguinal hernia of both sides. Infection followed and two and one-half months after suppuration had subsided, a hard mass the size of a dollar developed in the abdominal wall in the left upper quadrant; it did not involve the site of the operation. It increased slowly in extent; was incised early and only blood was found; healed promptly with no effect on the growth; skin adherent; no pain and very limited movement on manipulation; no enlargement of lymph-nodes. After a month of absorbent treatment without effect, incision was made the full length of the growth; no pus was found but a pale rose-colored fluid was discharged. The wound healed primarily. Tissue removed for histologic examination showed inflammatory new growth with some leukocytes and many plasma cells. Cultures showed small, white, Gram-negative staphylococci, which produced no effect on animal inoculation. The patient left the hospital with general and local conditions unchanged. The author states that in previous studies many varieties of bacteria have been reported: Klebs-Loeffler, pseudodiphtheria, streptococci, *Bacillus proteus,* staphylococci, white and yellow—all of attenuated virulence. He concludes that there is no specific bacillus. Vaccines are not mentioned.

Accompanying Duse's contribution is quite a complete foreign bibliography extending from 1893 to 1909. With his experience, study and general knowledge of the subject, his observations especially should be worthy of respectful consideration, as those of others are in a more limited way.

I present a report of two cases, both of the abdominal wall:

CASE 1.—J. M., aged 72 years. Good personal history. I operated on him for right inguinal hernia, Sept. 25, 1910. After two weeks he left the hospital for home and developed a slight infection due to a linen stitch which I applied at the internal ring. The hardness and swelling were out of all proportion to the extent or degree of suppuration. It covered an area of 3 inches transversely and extended above and to the full length of the incision. The skin was red and dusky.

I reopened the wound its full length and removed the stitch. The tissues were red, solid and compact as a piece of beef; this and the unusual hardness and appearance attracted special attention. It healed rapidly and perfectly, and the swelling and hardness gradually disappeared in the course of three months—long after he had returned to his business and his general health had been restored.

Bacteriologic studies were made and demonstrated staphylococcic bacteria. I regarded it as an unusual and protracted form of inflammation due to stitch infection. I had seen nothing resembling it in the postoperative history of herniotomy and did not understand it. It was undoubtedly a case of woody phlegmon and it is an interesting fact that it did not prevent the perfect success of the operation and that the patient has remained well up to the present time.

CASE 2.—G. K., aged 52 years, married. Occupation, railway engineer. No constitutional infection at any time and no local trouble previous to the attack of appendicitis. The following history to the date of his coming to Denver was given by his attending physician, Dr. F. H. Smith of Goodland, Kansas.

March 26, 1911, the patient was taken with an acute typical attack of appendicitis, severe colicky pains, becoming localized in the right iliac fossa within twenty-four hours; temperature was 103 and pulse 106. These symptoms continued for four days, when all symptoms decreased in severity; temperature 100 and pulse 90. His condition gradually improved until April 21, when he was able to sit up. No operation.

May 11, he visited the physician's office; temperature was normal but the tenderness over the appendiceal region was still marked.

June 4, he suffered a second attack of appendicitis of moderate severity, which lasted two or three days. No operation. He recovered sufficiently by the latter part of the month to resume his duties and worked through the summer as an engineer, but was never well.

September 4, he consulted his physician, complaining of painful micturition. During the examination, the physician observed on palpation a hard oval tumor the size of an orange in the lower abdominal wall, the larger part to the right of the median line and seeming to dip into the pelvis. It continued to increase in size and September 25, the patient walked into my office in a stooping position after a ride of six hours on the train.

An immediate examination revealed a large mass of the lower abdomen, covering the right hypogastrium a little more fully than the left, extending to the umbilicus and seemingly fixed to the pubis. The mass was not adherent to the skin and moved freely from side to side with the abdominal wall. Its outline was well defined, and it felt just as hard as a large uterine fibroma, differing in the important particular that it could be moved only with the abdominal wall. It could not be indented with finger pressure. Necessarily one would connect it with the history of appendicitis and suspect deep-seated suppuration, though palpation gave no evidence of it.

I had seen nothing like it and was not able to say that it was not connected deeply with the appendix, or some other intra-abdominal viscus. I sent him immediately to St. Luke's Hospital, and Sept. 25, 1911, operated by making a free incision into the most prominent part of the mass to the right of the rectus muscle. At a depth of 2 inches, I opened a small circumscribed abscess containing a tablespoonful of thick, creamy, non-offensive pus; thinking it might lead to another abscess, I explored the wound carefully, forcing my finger deeper through the hard tissues, but careful not to enter the peritoneal cavity. I then introduced conical pressure forceps through the mass, spreading the handles, but only moderate venous hemorrhage was encountered. I immediately made an incision to the outer side of the left rectus and used the forceps in the same manner and with the same result. The wounds were packed with iodoform gauze and the abdomen dressed with gauze, cotton and bandage. The patient's temperature on entering the hospital was 98½. Urinalysis showed no casts and only a few epithelial cells and pus-corpuscles. He was in the hospital a month and only once or twice did his temperature reach 101; it ranged from 98½ to 100, usually 98½ to 99½, and pulse 80 to 100. Following the operation, there was a rather free serosanguineous discharge, seldom any pus.

7. Consentino: Contributo allo studio del flemmone ligneo di Reclus, Policlinico, 1912, Surg. Sect., pp. 145-176.

8. Duse: Contributo allo studio del flemmone ligneo di Reclus, Gazz. d. Osped., 1910, xxxi, 625.

The mass diminished perceptibly in size for a week following the operation and then increased again, following especially the course of the rectus muscles upward and the oblique on the right. I had considered the question of malignancy, syphilis and tuberculosis, but neither appealed to me as applicable to the case. The Wassermann and tuberculin tests were negative, and the report of the pathologist settled the former. Pus and a slice of muscle were taken from the side of the wound for examination. The report of the pathologist, Dr. Philip Hillkowitz, which follows, shows only the ordinary products of inflammation:

"Sections from the tissue removed from the wound revealed an extensive round-cell infiltration, and the presence of numerous young fibroblasts and newly formed blood-vessels. The muscles show advanced degeneration. There is no evidence of a neoplasm, the appearance being that of an inflammation with characteristic granulation tissue. Smears from the exudate as well as cultures taken therefrom show the presence of *Staphylococcus pyogenes aureus*."

Anxious to settle more definitely the nature and extent of the difficulty and especially its relation to the viscera, I opened the abdomen in the middle line above the umbilicus Oct. 9, 1911. The fascia cellular tissue and peritoneum were closely adherent and hard. There were no adhesions (not even to the omentum), with the exception of some about the cecum, but there was no abscess nor mass about it and the appendix was not looked for. With one hand in the abdomen and the other outside, I moved the anterior abdominal wall laterally in both directions. This demonstrated that the disease was confined to the walls of the abdomen and justified the opinion that it was ligneous phlegmon, due to appendicitis and the general depreciation of health in consequence. The condition seemed undoubtedly infectious.

I was anxious to give the vaccines a trial and failing, on account of unsatisfactory material from the wound, to get the autogenous, I concluded to use the stock vaccines. The patient was sent home soon after this. As the mass increased in size, the pain was more marked. I advised his physician to give first, a few doses of the colon bacillus vaccine, on the theory that the colon bacillus was at least the chief infective bacterium in the early history of the case.

Commencing Dec. 26, 1911, and continuing until Jan. 18, 1912, eight doses were given by Dr. Smith, beginning with two hundred million and increasing to four hundred million of colon bacillus vaccine. After this I advised the injection of mixed staphylococcic vaccines every five to seven days, the dose to be determined by the reaction. The report follows:

The tumor was again increasing in size; the wounds were mopped out daily with tincture of iodin when the discharge of pus was free, and as it subsided, every second or third day. The tumor remained stationary until Dec. 20, 1911, when it again began to increase in extent and to become more painful, requiring an occasional dose of morphin for relief. The effect of the colon vaccine on the growth or mass was imperceptible except for marked relief from pain, and increased appetite.

Jan. 18, 1912, the colon bacilli injections were discontinued. The reaction was not marked. Soon afterward, an abscess pointed to the right of the umbilicus and was opened by Dr. Smith through a small incision and discharged freely. The mixed staphylococcic vaccines, beginning with one hundred million and increasing to one billion, were now injected directly into the tumor mass; temperature was 103 from the first and 105 from the second injection into the tumor, and this was followed by vomiting. The next morning, the patient felt fine and had no pain, though the discharge was profuse from all wounds. These injections were all made into the indurated, inflamed mass. After the third dose, the swelling and hardness commenced to disappear perceptibly. The injections were continued at intervals of three or four days until April 23, 1912. The reaction from injections became steadily less until hardly perceptible when discontinued.

The patient's appetite and strength improved rapidly, and he walked about daily, except when the injection was given. The discharge soon diminished under this treatment, though increased at first. When the treatment was discontinued, the patient having taken eight of the colon bacillus and thirty-nine of the staphylococcic vaccines, there remained unhealed only a small fistulous tract from the first incision with only a small quantity of serosanguinolent discharge, and the mass had almost entirely disappeared, except for a small, hard lump surrounding the fistulous opening.

The patient is presented and examination finds him in excellent general health and the abdomen perfectly normal, except for a small lump at the site of the first incision. All wounds are closed.

DIAGNOSIS

The diagnosis has been regarded as exceedingly difficult, especially at an early period. The differential determination has been as to epithelioma, sarcoma, actinomycosis, syphilis and tuberculosis. Schmincke believed it cancerous, but this theory, endorsed by Lang, if not abandoned, doubtless soon will be. In the future, with experience and greater familiarity with reported cases, there should be little difficulty in eliminating the diseases mentioned at an early period in the history of a case.

Patient after operation for woody phlegmon

With existing knowledge, I believe we are justified in concluding that the disease occurs generally after middle life and when resistance has been impaired by previous ill health. The immediate exciting cause is a slow, infective process, with or without trauma. The dictum of Reclus that it is not due to specific bacteria, but is due to a variety of germs of lessened virulence, seems confirmed by subsequent bacteriologic and histologic investigations. That it is not cancer or any form of neoplasm, but a gradual, slow, degenerative inflammation affecting connective tissue, fascia and muscles and finally the skin, seems evident. The lymph-nodes are not usually affected. The chief offending agency is probably mixed staphylococci of weakened virulence. The usually slow development, interrupted and protracted course, and final resolution are characteristic. Hyperleukocytosis always exists. The duration is indefinite, but is usually from several months to two or more years. Under more prompt diagnosis and more favorable treatment, convalescence and cure will doubtless be accomplished at an earlier date.

TREATMENT

Treatment of the past has been empirical and naturally, under the circumstances, not based on any scientific fact or principle.

Keen[9] says "treatment has little or no effect."

Dacosta[10] says "the disease is always dangerous and frequently fatal. Extirpation not feasible."

Lexer and Bevan[11] say that "quicker results are obtained by incision and exposure of intermuscular spaces as bacteria are removed with the wound secretion."

Treatment has been chiefly of a character to promote suppuration; namely, incision and hot, moist applications. Patients have seemed to derive some comfort when free suppuration existed, but ordinarily, it is of short duration and how it benefits I do not understand. Free sanguinolent effusion is common, and free incision should aid greatly, it would seem, in the relief of tension as well as for drainage.

Powers quotes with approval the suggestion of Friedrich in favor of wide excision. In certain cases I regard this as well-nigh impossible, and as unjustifiable surgery in most cases, unless of a small, distinctly circumscribed mass that is no longer acute. Furthermore, if feasible, it would be indefensible because a needless sacrifice of important tissues, especially of fascia and muscles. If the abdominal wall is the vulnerable part, excision of any magnitude would be a serious impairment of its functions, and would invite and probably result in hernia that would be difficult to cure. Furthermore, evidence is wanting that radical excision would materially influence the course of the disease.

In the second case I report, excision would not have been considered for a moment. Vaccines have been used but little. In my case, affecting extensively the abdominal walls, the injection of serum directly into the mass was, after incision, the most important and promptly effective measure used. I believe the mixed staphylococcic vaccines, the autogenous preferred, injected into the hardened tissue, the most promising therapeutic agent at our command.

I predict that the disease will be cured more quickly and completely by free incision (not excision) and serum treatment, than by any or all other means known at the present time. The disease is not so fatal or perhaps so dangerous as some surgeons have evidently believed, but its inveterate and disabling character invites the ingenuity and skill of every surgeon who has to deal with a severe or serious case.

The prognosis is in the main favorable, and the tendency is to a favorable result ultimately, but the course of the infection is vacillating, with recessions and an increase in inflammatory conditions, and resulting pain and discomfort and prolongation of the disease. As it is known to follow infectious diseases, such as appendicitis, it must be regarded as an additional reason for removing the diseased appendage and every other focus of infection at the earliest possible date.

930 Pennsylvania Avenue.

9. Keen: Woody Phlegmon, Keen's Surgery, iii, 298.
10. Dacosta: Wooden Phlegmon, Modern Surgery, p. 131.
11. Lexer and Bevan: Woody Phlegmon, in General Surgery, p. 277.

No Medical Training Required to Prescribe Proprietaries.—The organ of the N. A. R. D., *Monthly Therapeutic Notes*, remarks: "Don't ever get away from the fact that when you prescribe a secret preparation you are not acting in the capacity of a physician, for any layman can read a circular of testimonials and order a nostrum."

A NEW METHOD OF SHORTENING THE ROUND LIGAMENTS

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The problem of retroversion and uterine prolapse has been covered so thoroughly at various times by the leading gynecologists, that the subject is not to be taken up in this article.

After careful study I found that all of the several methods employed in the shortening of the round ligaments, either to correct retroversion or as an aid in the treatment of uterine prolapse, were deficient, presenting several disadvantages which made me seek for a better operative procedure.

It is well known by all who practice gynecology that the so-called Alquié-Adams-Alexander operation as well as its modifications, Edebohls', Newman's, Goldspohn's, Martin's, Duret's, Kellogg's, Doleris', Cassati's and

Fig. 1.—The cutaneous and fascial incisions; the round ligament drawn out.

others, utilize merely the distal half of the ligament, leaving the resisting and more powerful proximal half to support the uterus; all have the disadvantage, however, of leaving unaltered the point of emergence of the ligament through the anterior abdominal wall, being ineffectual in supporting the uterus, as the level of the internal ring remains lower than the proximal end of the ligament.

The same objections hold against the several operations of Wylie, Mann, Dudley, Webster, Baldy, Coffey and Bissell, all of which have the additional disadvantage of shortening the round ligament at the expense of the posterior (more resisting) part, and of being intraperitoneal. The operations of Gilliam, Ferguson, Simpson, Montgomery, Mayo, Branch and Crossen shorten the ligament at the expense of the anterior (weakest) portion, elevating at the same time the fixed, anterior or abdominal end; they present therefore a double advantage over the methods already mentioned, though with the same disadvantage as those of the second group, namely, that of being interperitoneal operations.

Trying to obviate such objections, I devised the following plan, which has advantages over both the Alexander and the Gilliam operation. My procedure is as follows:

1. An incision is made over the internal inguinal ring, about 2 inches in length and obliquely upward and inward as shown in Figure 1. All bleeding points are ligated.

2. The internal ring being located, an incision is made in the aponeurosis of the external oblique in the direction of its pillars, exposing the canal, just over the internal ring. A blunt hook is introduced and its point directed toward the median line in order to isolate the round ligament, which almost always is included among the tissues engaged. Once isolated, the ligament is freed from all the tissues which cling to it; the peritoneum is stripped back with the aid of gauze wrapped around the index-finger, and by the use of forceps or small snips of the scissors once in a while, extreme care being taken not to divide the peritoneum.

3. When the ligament has been drawn out as far as necessary, a silk ligature is tied around it, as shown in

Fig. 2.—The index-finger, introduced through the internal inguinal ring, is dissecting away the extraperitoneal fascia and peritoneum from the abdominal muscles, thereby facilitating the following step, shown in Figure 3.

Figure 2. The right index-finger is then introduced through the internal inguinal ring, separating from the abdominal wall proper the extraperitoneal fascia and peritoneum in a direction upward and inward as high as one desires to fix the anterior end of the ligament (usually from 1 to 2 inches), going well back of the rectus muscle. Some difficulty is sometimes encountered in this step, shown in Figure 2.

4. The two ends of the silk ligature are threaded into the eye of a Deschamps needle, which is then introduced into the tract made by the finger, up to the desired point, where it is thrust from behind forward through the rectus muscle, bringing its point out as in Figure 3. The needle is unthreaded and withdrawn; traction is made on the ligatures and a loop of the ligament is made to appear through the anterior leaflet of the rectus sheath. It is a good plan to cover the wound after this step while the same operation is performed at the other side. By so proceeding the uterus can be placed in such a position as may be desirable.

5. The last step consists in the fixation of the loop of ligament to the aponeurosis by means of two or three interrupted or continuous sutures. If the loop of ligament drawn out through the rectus muscle is too long it can be treated as in Kellogg's operation; that is to say, an aneurysm needle is introduced through the aponeurosis at about an inch external to the point of emergence of the loop, and is made to appear at about half an inch from it; threading the silk ligature through its eye, the needle is withdrawn, carrying out the ligature and the loop of ligament, which is sutured to the aponeurosis as already stated (Fig. 4).

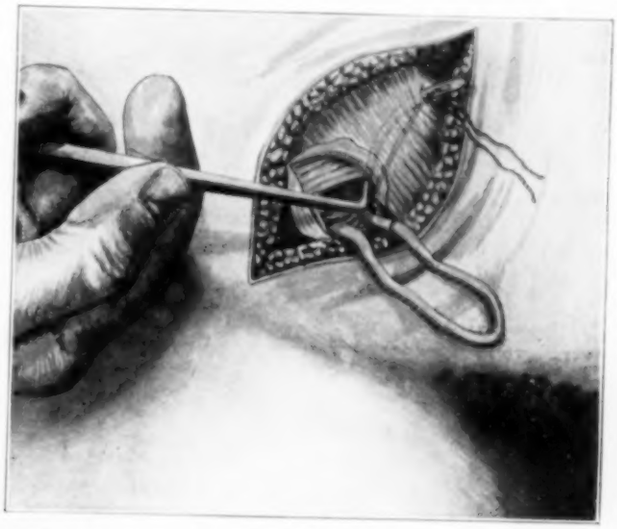

Fig. 3.—A Deschamps needle is introduced into the tract made by the index-finger, carrying the silk ligature, which is made to appear through the anterior leaflet of the rectus sheath after transfixing of the rectus muscle.

Fig. 4.—Loop of ligament transfixed by Kellogg's method and sutured in place. The last step closes the inguinal canal as in a Ferguson operation.

6. The last step closes the internal ring and inguinal canal as in a Ferguson operation. Finally the skin is sutured as in any abdominal operation.

CONCLUSIONS

1. My operation has the advantage of being extraperitoneal.

2. It shortens the ligament at the expense of the weakest distal half, leaving intact the proximal and stronger portion.

3. It elevates the abdominal fixed point, carrying it toward the median line, and therefore suspending the uterus.

4. Its disadvantages are: A. Two incisions are required. B. As in the Alexander operation, it is limited in its application. If the uterus is not mobile, if it is adherent to neighboring organs, there will be difficulty in getting it into place. It is true that Goldspohn's procedure of entering the peritoneal cavity to treat adnexal conditions can be easily performed, but such a procedure has a limited field of usefulness; my operation, therefore, cannot be performed in any but suitable cases. C. When by atrophy the ligaments have become attenuated they are of little use in maintaining the uterus in position. In cases of prolapse or vesicocele the accessory operative procedures should be performed, as colporrhaphy, perineorrhaphy, curettage, trachelorrhaphy, etc.; otherwise the operation will be useless.

Calle 59, Numero 488.

AN EXPERIMENTAL STUDY OF BONE GROWTH AND THE SPINAL BONE TRANSPLANT *

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The special object of the animal experimentation reported herein was to afford means for studying both macroscopically and microscopically a bone-graft when planted in a dog by precisely the same technic as that which I employ in the human subject for the treatment of Pott's disease of the spine.[1]

I wish to express my thanks to the following for valuable aid rendered in this work:

Dr. Ferguson for his interest in superintending the preparation of most of the microscopic sections, for his examination of these sections and for many valuable suggestions.

Dr. Beebe for aid, suggestions and laboratory privileges.

Drs. Soule and Keller for indispensable aid in the operating-room.

REPORT OF EXPERIMENTS

EXPERIMENT 1.—Dec. 10, 1911: Dog, mongrel, male, approximate weight 30 pounds. Ether anesthesia. Anesthetist, Mr. Cassellius. Fields of operation: dorsal region of back and left fore leg, prepared by shaving, and scrubbing with tincture of green soap and water, followed by corrosive sublimate 1:1,000 and 70 per cent. alcohol. The spinous processes of three of the mid-dorsal vertebrae were approached by an incision through the skin and areolar tissue directly over their tips. The supraspinous and interspinous ligaments were split with a scalpel to a depth of two-thirds of an inch between the spinous processes without disturbing the attachments of the ligaments to the spinous processes. Each of the three spinous processes was split longitudinally with a chisel and mallet into halves for a depth of about two-thirds of an inch, care being taken that the right halves of the spinous processes were not broken. A separation of the tips of the halves of these spinous processes produced a wedge-shaped cavity, into which the ulnar transplant was later inserted. A hot saline compress was placed in the wound until the bone insert was obtained. This was for the purpose of securing as perfect hemostasis as possible for a bed for the bone-graft. Half the diameter of the shaft of the dog's right ulna was then removed with chisel and the bone-forceps. The graft consisted of periosteum, compact bone, endosteum and marrow substance. It was inserted between the halves of the interspinous ligaments and spinous processes, and held in place with interrupted sutures of linen, which were passed through the supraspinous ligament and the posterior edge of the halves of the interspinous ligaments near the tip of each spinous process. These ligaments were thus drawn over the graft posteriorly. The procedure was precisely that which I have applied to human subjects and of which I have published reports.[1]

December 13, the wound was septic. December 20, much pus was discharging from the wound. Sinus slowly decreased in size in the next few weeks.

Necropsy.—May 28, 1912: The wound had healed with the exception of a small sinus; a sliver of nearly one-third the diameter of the graft anteriorly and tapering to a pointed end posteriorly had sequestrated from the rest

Fig. 1.—View of a dog's vertebra (Experiment 1), into the spinous process of which a portion of his ulna had been ingrafted six months before; *a*, *b* and *c* indicate the outlines of the graft, which has become firmly grown into the split spinous process. Figure 2 is from a photomicrograph of a section of graft grown into the spinous process at this point.

of the graft, which had become firmly united to the spinous processes. The whole posterior diameter had lived and become firmly grown into the spinous processes. The result was a bridge of bone uniting three vertebrae. Although sepsis had occurred and no attempt had been made to immobilize the dog's spine, a gauge dressing was applied at time of operation and the dog was placed in a cage. *X*-ray examinations of the gross specimen and a microscopic study of decalcified and non-decalcified sections failed to show degeneration of that part of the graft which had become united. No cartilage cells could be found; the union of graft to spinous process was by new bone formation.

EXPERIMENT 2.—Jan. 18, 1912: Dog, male, mongrel, weight 20½ pounds. Ether anesthesia. Assistant, Dr. Keller. Precisely the same technic was carried out in this case as in Experiment 1, except that the whole diameter of the shaft of the ulna was removed subperiosteally. A sharp periosteum elevator was used and the periosteum was removed from the

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* From the Loomis Laboratory, Cornell University Medical College.

1. Albee, Fred. H.: Transplantation of a Portion of the Tibia into the Spine for Pott's Disease, THE JOURNAL A. M. A., Sept. 9, 1911, p. 885; Bone transplantation as a Treatment for Pott's Disease, Club Feet and Ununited Fractures, Post-Graduate, November, 1912, p. 999; New York Med. Jour., March 9, 1912. Other studies in bone growth, periosteal transplantation, etc., have been carried on, coincidently, as will appear.

bone with force for the purpose of being certain of separating the deep osteogenetic layers from the bone cortex and obtaining it as a part of the periosteum. The periosteum was left *in situ* in the leg. The transplant was inserted by the same technic as in Experiment 1, except that the periostum had been removed as previously described. The leg and back wounds were closed by a continuous suture of linen. The periosteal tube was allowed to collapse.

Jan. 22, 1912: Back wound septic.

Jan. 28, 1912: Leg wound healed by primary union.

Necropsy.—Feb. 29, 1912: Back wound was septic; graft had sequestrated. It is believed that the difficulty in preparing the dog's skin for operation, in addition to large hemotomata which invariably collect into loose areolar tissue of the dog's back in spite of all precautions, was largely responsible for the sepsis in the back wound, at the same time the leg wounds were clean.

The conditions about back wound were precisely the same as those in Experiment 1, namely, a deposit of osteoid tissue

Fig. 2.—Decalcified section through long axis of spinous process with cross-section of the grown-in graft. Six months after a portion of same animal's ulna had been grafted into spinous processes. A careful microscopic study of these sections and all others have failed to disclose dead bone-cells. The corners of the graft are indicated by *a*, *b* and *c* (*d* is a microtome artefact); *c* is base of spinous process.

in wall of sequestrum pocket. The graft, however, had sequestrated.

In the leg a bridge of bone had appeared where the shaft of the ulna had been removed. In the center it tapered to a diameter about one-half that of the original bone. This bone growth had been very rapid and connected the ends of the ulna.

EXPERIMENT 3.—Jan. 23, 1912: Dog, terrier, female, weight 22 pounds. Ether anesthesia. Anesthetist, Mr. Cassellius. Assistant, Dr. Keller. The spinous processes of last two dorsal and first, second and third lumbar vertebrae were prepared as usual for the graft. With chisel and mallet and saw about 1¾ inches of the left ulna were removed leaving the periosteum, from one-half its diameter, *in situ* in the leg. The periosteum was removed in this instance with the blunt end of a pair of scissors and no force was used in scraping the periosteum from the bone. The periosteum peeled off easily. The portion of the ulna which had been removed was then split longitudinally with a chisel into equal parts, on one of which was the periosteum. This latter fragment was inserted into the last two dorsal vertebrae. The portion from which the periosteum had been removed was inserted into the second and third lumbar vertebrae.

Necropsy.—Feb. 29, 1912: Posterior end of wound was filled with pus. Anterior end of wound had healed by granulation. The graft from which the periosteum had been removed and which had been placed in the lumbar vertebrae had sequestrated and was surrounded with pus. The graft insert which was placed in the dorsal vertebrae was firmly

Fig. 3.—Junction of graft and spinous process in a case of six months (Experiment 1). No dead bone-cells could be found in these specimens. From a high-power photomicrograph.

Fig. 4.—Specimen from Experiment 1 showing bridge of bone between three vertebrae, the result of a bone-graft inserted six months before.

united into those vertebrae. A microscopic examination showed the union to be bony. No evidence of degeneration or cellular death could be found. No bone or evidence of osteogenesis appeared between the ends of the ulna where the grafts had been obtained, except about the bone ends. The periosteum in this case, as stated, was removed from the bone by means of a blunt instrument and with no effort to get into a deep cleavage.

EXPERIMENT 4.—Jan. 25, 1912: Dog, mongrel, female. Ether anesthesia. Anesthetist, Mr. Cassellius. Assistant, Dr. Soule. This dog on the evening before the operation received a bath in 2 per cent. aqueous dilution of liquor cresolis com-

positum. In all following experiments this bath was given. Two inches of the shaft of left ulna were removed subperiosteally. A sharp periosteal elevator was used for the purpose of getting into deep cleavage. The portion of the ulna shaft removed was then split longitudinally with a chisel and mallet into halves. One of the bone fragments was inserted by the usual technic into the last dorsal and first and second lumbar vertebrae. The remaining bone fragment was placed in sterile normal salt solution in an ordinary ice-box for the purpose of transplanting it into the next dog operated on. Wounds healed by primary union.

Fig. 5.—Junction of graft and spinous process (*a*, *b*). The transplant had been inserted four months (Experiment 5). From a high-power photomicrograph.

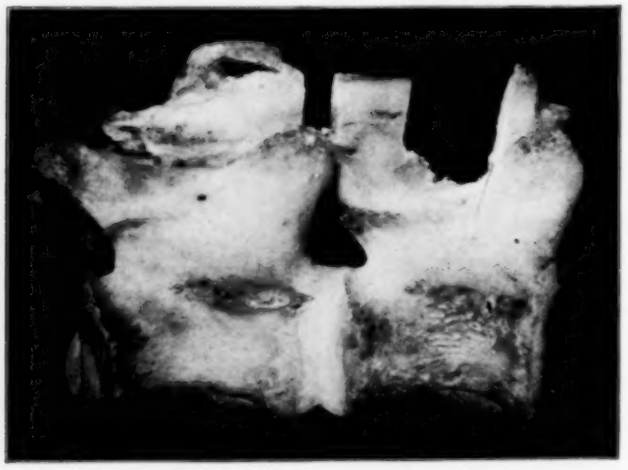

Fig. 6.—Two vertebrae of a dog into which the bone transplant (A, B) had been inserted six weeks before. (Experiment 11); from a photograph. Sections have been taken for microscopic examination.

Necropsy.—May 9, 1912: Transplant was found united firmly with the spinous processes. The graft had lost its identity. From the appearance of the bridge of bone between the tips of the three spinous processes one could not say from what it had originated. Microscopic examination showed bony union of graft to spinous process and no evidence of cellular degeneration. A strong bridge of bone was present between ulna ends filling in the space where the transplant had been removed. This bridge of bone was not quite so large in diameter as the normal ulna shaft. It was, however, sufficiently strong for functional purpose. It is believed that the satisfactory osteogenesis obtained in this case as, for instance, compared with practically no bone growth in Experiment 3, was due to the method of removing the periosteum by a sharp instrument for the purpose of getting into deep cleavage. In this way the chances are large that the very active osteogenetic layer of cells which is situated on the surface of and considerably adherent to the compact bone, will be loosened either entirely or partly, and separate off as a part of the periosteum.

EXPERIMENT 5.—Jan. 30, 1912: Dog, black hound, male. Ether anesthesia. Anesthetist, Mr. Cassellius. Assistant, Dr. Soule. Incision was made over last three dorsal and first three lumbar vertebrae. Spinous processes of the three lumbar vertebrae were split into right and left halves with a chisel and the bone fragment 2 inches long which had been removed from the dog's ulna in Experiment 4, Jan. 25, 1912, and kept in normal salt solution in an ice-box, was inserted into the prepared lumbar vertebrae. The spinous processes of the tenth and eleventh dorsal vertebrae were denuded with a blunt instrument of their periosteum from the neural arches posteriorly to the tips of the spinous processes where they were left attached to each. The separated ends were then held in approximation by linen sutures. The skin was sutured by the subcutaneous method. In all previous cases the skin was closed with the ordinary through-and-through stitch; all succeeding wounds were closed with the subcutaneous suture, resulting in much less skin infection.

Fig. 7.—Longitudinal section through spinous process with cross-section of graft (*a*, *b*, *c*) which had been inserted six months; from a low-power photomicrograph of a non-decalcified ground specimen. Numerous blood-vessels can be seen, under high magnification, extending from spinous process into graft.

Necropsy.—May 8, 1912: The transplant was amalgamated into the spinous processes and had nearly lost its identity. It showed the contour of the graft on one end. From the appearance of the bridge of bone, one would not have thought that it was due to a bone transplant. There were only a few small disconnected plaques of proliferated bone from the periosteum which had been stretched across between the dorsal spinous processes.

It is thought that the fact that there was not a satisfactory bone growth from the periosteum may be accounted for in

two ways: first, the periosteum on the spinous processes is meager and unsatisfactory on account of so many muscular and ligamentous attachments; secondly, the periosteum was removed with a blunt instrument without a special effort being made to get into deep cleavage.

EXPERIMENT 6.—Jan. 30, 1912: Dog, bull, male, weight 28 pounds. Ether anesthesia. Anesthetist, Mr. Cassellius. Assistant, Dr. Soule. Incision was made over and down to spinous processes of last two dorsal and first three lumbar vertebrae. Two and one-fourth inches of left ulna with its periosteum were removed with saw and split with chisel longitudinally into halves. These fragments of bone were then inserted into the spinous processes by the usual technic, one into the lumbar vertebrae, the other into the lower dorsal. The wounds healed by primary union.

The dog was found dead May 6, 1912. In my absence Mr. Cassellius removed the operated portion of the spine and placed it in fixing solution for future examination. These transplants, like all the others in the presence of asepsis, had become firmly united to the spinous processes into which they had been inserted.

EXPERIMENT 7.—Feb. 1, 1912: Young dog, mongrel terrier, weight 18 pounds. Ether anesthesia. Anesthetist, Mr. Cassellius. Fields of operation prepared by iodin method. An incision over last three dorsal and first three lumbar vertebrae was made. The lumbar spinous processes were split longitudinally on the left side of their center down to the neural arches. Wound as usual was packed with hot saline compress. One and three-fourths inches of diaphysis of left ulna were removed subperiosteally. A blunt instrument was used to separate the periosteum which was left *in situ* in leg. One-half of the ulna shaft was placed by usual technic into the posterior lumbar vertebra. Pieces of periosteum stripped, without aid of sharp instrument, from ulna (varying in size from one-fourth by one-fourth of an inch to small bits) were sutured into the belly of the muscle, which had been turned aside, when the ulna shaft was removed. The muscle was then sutured into its normal position. The periosteum, on the left sides of the two anterior spinous processes was stripped and retained in two pieces with some difficulty. These periosteal flaps were then drawn together and sutured, thus producing a periosteal bridge between these processes. The remaining half of the ulna was placed in salt solution for the purpose of transplanting it into the next dog operated on.

Necropsy.—At necropsy three months later the transplant was firmly united into the spinous processes. No osseous tissue could be found as a development from the periosteal bridge between the spinous processes. Only a small plaque of new bone could be found where the ulna had been resected. There was new growth of bone about cut ends of ulna.

EXPERIMENT 8.—Dog. Ether anesthesia. Anesthetist, Mr. Cassellius. Assistant, Dr. Soule. The last three dorsal and first three lumbar spinous processes were split as usual. Numerous slivers of the previous dog's ulna devoid of periosteum were placed between the split portions of the two upper dorsal vertebrae. The superspinous and interspinous ligaments were drawn over in the same way as when a large graft was used. All the ligaments and muscles were separated from the second and third lumbar spinous processes for about two-thirds of an inch from their tips. These two spinous processes were then split longitudinally into equal anterior and posterior portions. Green-stick fractures were produced in the anterior half of the posterior process and the posterior half of the anterior process. The tips of these fragments, well denuded of periosteum and soft tissues, were then contacted and held with a linen ligature. The ligaments and fascia were drawn over all with a continuous linen suture. Skin was closed as usual with subcutaneous continuous suture.

Necropsy.—At necropsy two and one-half months later there was evidence of some skin infection which had nearly subsided. The slivers of bone had united and produced a bridge of bone between the spinous processes but not so firm as one resulting from one large graft. There was no bony union between the approximated fragments of the second and third lumbar spinous processes.

EXPERIMENT 9.—Dog, terrier, male, weight 18¼ pounds. Preparation: bath in compound solution of cresol and shaving the night before operation. Field of operation allowed to dry over night and treated with American tincture of iodin just before operation. This preparation was used in all of the succeeding cases and was found very satisfactory. Ether anesthesia. Assistant, Dr. R. E. Soule. Site in back for graft was prepared as in previous cases and packed with saline compress. Two inches of middle of left ulna were removed subperiosteally with blunt dissector. This portion of the ulna was then split longitudinally into quarters, two of which were placed in the tips of three lumbar vertebrae. A strip of periosteum one and one-fourth inches by one-third inch taken from the ulna by a blunt dissector was placed into the tips of two split spinous processes anterior to those that contained the graft previously inserted. The periosteum was placed in a similar manner to that of the bone graft. The back wound was closed. Two pieces of bone one-fourth inch by one-fourth by one-eighth inch in diameter, which had been taken from the tip of a spinous process of the same dog, were placed in the belly of a muscle in the left fore leg. Two pieces of bone of the same size were taken from ulna and placed in belly of another muscle in left fore leg, the object being to determine which was the more osteogenetic.

The dog was found dead Feb. 27, 1912.

Necropsy.—Feb. 28, 1912. Assistant, Dr. Soule. Bone transplant was found firmly united by callus to those spinous processes into which they had been inserted. The graft presented every appearance of being live bone. The small piece of bone from the tip of a spinous process, which had been implanted into a muscle belly at operation, had changed very little; there was a very small proliferation on the side of the periosteum. The piece of bone taken from the ulna and inserted into a muscle belly had changed also very little. There was, however, considerable proliferation on the side of the periosteum. The piece of periosteum (1¼ inches by one-third inch), which had been placed between the tips of two split spinous processes, presented no evidence of proliferation and was hard to find.

EXPERIMENT 10.—Feb. 13, 1912: Puppy, terrier. Ether anesthesia. Assistant, Dr. Soule. Incision 5 inches long was made over and down to tips of last dorsal and first three lumbar vertebrae. Interspinous ligaments were split with scalpel, spinous process with chisel. A piece of the ulna bone of the dog previously operated on (1¾ inches long and one-half the diameter of the ulna) was inserted by technic above described into the spinous processes of the second and third lumbar vertebrae. A piece of the same dog's left ulna of about the same size was then removed subperiosteally with chisel and saw and inserted into the last dorsal and first lumbar vertebrae. A piece of periosteum (1¼ inches by one-third inch) removed by blunt dissection from the ulna was placed into the fascia one and one-half inches to left of the first lumbar vertebra and fixed with linen sutures. On the opposite side (right) and in the same relation to the first lumbar vertebra a piece of the left ulna (one-half by one-eighth of an inch) was placed in the same manner as the periosteum. The right fore leg was broken over the side of a table and a splint was applied, in order to obtain thickened proliferating periosteum for grafting purposes in ten days' time.

Necropsy.—Feb. 27, 1912: Both pieces of bone, the one from another dog and the one from the same dog, were equally firmly united into the spinous processes. A careful microscopic examination of sections made through graft at various places and through junction of union of graft to spinous process failed to show any evidence of degenerated bone-cells. The periosteum inserted into the fascia to the left of the spine, presented no evidence of proliferation, either periosteal or bone. The bone placed under similar condition to the right of the spine showed considerable proliferation, especially on the periosteal side.

EXPERIMENT 11.—Feb. 15, 1912: Puppy, male mongrel, weight 17¾ pounds. Ether anesthesia. Assistant, Dr. Soule. Shaft of left ulna was removed, with its periosteum intact, and placed in normal salt solution, to be kept in ice-box for a following case. The spinous processes, last dorsal and first

lumbar vertebrae were prepared as usual and a piece of a puppy's ulna (one-half its diameter and 1¾ inches long), which had been removed two days previously and kept in Ringer's solution in an ice-box, was inserted by usual technic into the second and third lumbar vertebrae. A fragment of ulna, with periosteum of approximately the same size, which had been removed from an old dog two days previously and kept in salt solution in an ice-box, was inserted into the last two dorsal vertebrae.

Necropsy.—Six weeks from time of operation: Both bone-grafts were found firmly united into the spinous processes. X-rays taken in different planes of specimens (see Fig. 6) failed to show any areas of degeneration in the graft. Both decalcified and non-decalcified (ground) microscopic specimen (see Fig. 7) were prepared and examined carefully. No dead bone-cells could be found. The graft, although only six weeks after insertion, was very completely united into the spinous processes by new-formed bone. No cartilage cells could be found.

EXPERIMENT 12.—Feb. 20, 1912: Dog. Ether anesthesia. Anesthetist, Mr. Cassellius. An incision 3 inches long was made over three lower dorsal spinous processes. The muscles and ligaments with periosteum were separated from them down to the neural arches and retracted. The processes were divided at their base with bone forceps and chisel close to the neural arches. The processes were then placed longitudinally so that the tip of one process came into approximation with the severed base of the next superior process. The soft tissues with periosteum were brought back with interrupted sutures of linen. Skin was closed with subcutaneous linen suture. The second and third lumbar processes were then exposed. Their tips were split for two-thirds of an inch *in situ* with supraspinous and interspinous ligaments undetached in the usual manner. A fragment of an ulna removed from a dog one week previously and kept meantime in normal salt solution in an ice-box was inserted as a graft by the usual technic. This transplant was 1¾ inches long and one-half the diameter of the ulna shaft. The skin was closed by subcutaneous suture of linen.

Necropsy.—Two and one-half months after operation: Bony union had not occurred between the dorsal vertebrae whose spinous processes had been broken down. It should be stated, however, that, as in all other cases, no attempt to fix or immobilize the dog's spine was made. The graft which had been inserted into the second and third lumbar processes was well united.

EXPERIMENT 13.—April 24, 1912: Dog, mongrel, male, weight 21½ pounds. This experiment was possible only through the kindness of Drs. Beebe and Berkeley, who allowed me to remove a part of a sheep's ulna while Dr. Berkeley was operating on it. A fragment of ulna 3½ inches by one-third inch, including periosteum as well as marrow substance, was removed from a large sheep and placed in normal salt solution until the dog's spinous processes, three in number (first dorsal and first and second lumbar), could be split and prepared in the usual way. The transplant was then inserted and covered with the ligaments as above described.

Necropsy.—Five weeks after operation: Although the wound had healed kindly by primary union, the transplant was found in a pocket filled with serum. No evidence of osteogenesis on the part of the graft or union to spinous processes was present.

The following deductions and conclusions are based on the experimental work reported herein, in conjunction with a clinical experience gained from 130 bone-grafting operations on the human subject, ninety-five of which have been for Pott's disease, ten for club-foot, eleven for paralytic deformities, eight for ununited fractures, one for osteomyelitis cavity, one fixation of tarsus for tuberculosis, one for deformity of tibia, one for deformity of the jaw, one for paralytic drop-wrist, and one for absent head and neck of femur and ununited fracture of neck of femur. In three of the cases of Pott's disease, the bone transplant has been cut down on for minor reasons, inspected and parts removed for examination. The time after operation has been three, five and seven weeks. In all of these cases the grafts have been well united into the spinous processes wherever contacted. In two cases the end of the graft had sprung posteriorly into the soft tissues. In every instance the portion of the graft, which was contacted into the spinous processes bled wherever cut with bone forceps; its periosteum was proliferated and the transplanted portion in every way presented the appearance of viability. On the other hand, in both cases, the portion of the graft projecting into the soft tissues was pale, the periosteum had not proliferated, the bone did not bleed in its central portion when cut, and was thought to be acting as an "osteoconductive scaffold," whereas there seemed every reason to believe, especially in the light of our microscopic results, that the portion in and between the spinous processes was viable, on account of the contacted points of haversian blood-supply being so numerous and near together.

SUMMARY

1. Many liberties can be taken with the bone-graft without interfering with its success. It has certain bacteria-resisting properties. In one case the transplant was kept in normal salt solution in an ice-box for one week and in others for shorter periods and successful results followed. In two cases sepsis occurred in the same wound; nevertheless, parts of the graft in each case became united to the recipient bone and remained, while the rest of the transplant sequestrated. From these experiences and the fact that in my series of 130 bone-grafting procedures on human subjects only parts of four grafts sequestrated, it is believed that one is safe in deducting that the bone-graft has considerable germ-resisting ability.

2. It seems very probable that the amount of haversian blood-supply is in a very large degree, if not wholly, responsible in determining whether the bone-graft lives as such or acts as an osteoconductive scaffold. This was especially emphasized in the three human cases cut down on. If the graft is to live as such the blood-supply contacts must be of favorable character and numerously distributed at short intervals along its whole extent. Such as is the case with the spinal graft or the transplant used for ununited fractures described elsewhere.

3. Ollier in 1858 described his technic for subperiosteal resection, but as far as I am aware, did not emphasize the importance of the employment of a sharp instrument with force in order to separate with the periosteum the embryonic layer of active osteogenetic cells, which is situated on the periphery of the compact bone, although it is evident from the description of his work that he frequently practiced this technic. It seems certain that osteogenesis on the part of the healthy periosteum removed from a healthy bone, is largely dependent on the presence of these active embryonic bone cells from the outer surface of the cortical bone. Therefore the wisdom of the use of the sharp periosteum elevator in bone resection is apparent.

4. The bone transplant apparently acts always as a stimulant to osteogenesis on the part of the bone into which it has been implanted.

5. The spinal graft in the dog loses its identity at about the fourth month. After that time one would not know from its appearance that the bone bridge had originated in this way.

6. Bone taken from another species, such as the sheep, did not unite to the recipient bone of the dog, although

in the presence of asepsis. This one experiment does not prove that sheep's bone will not unite to dog's bone as a graft, but it does prove the unreliability of the procedure.

7. A bone bridge between different vertebrae was accomplished in this small series of experiments only by the bone-graft. Breaking down the spinous processes, splitting the spinous processes with approximation to the contiguous halves, and the insertion of periosteal bridges all failed to produce the desired continuous bone bridge.

8. Bone transplants taken from a long bone such as the ulna showed evidence of greater osteogenesis than when taken from the spinous processes.

9. Bone from which the periosteum had been removed proved equally satisfactory to bone-grafts on which the periosteum had been retained, but their persistency was not tested because the animals were not allowed to live long enough. It seems certain that the fate of a bone-graft depends largely on its exact environment especially as to the numerous bone contacts closely situated.

10. The above-mentioned germ-resisting property of the bone-graft, in addition to its early adhesion, by bone growth, to the bones, with which it is contracted, favors in my opinion its substitution when feasible in place of all metal internal splints, especially when it is considered that the metal splint has absolutely the opposite influence, namely, the production of bone absorption, and favors infection.

11. It also seems that it is largely a question of definition of what the periosteum is and what it includes as to whether it is to be actively osteogenetic or not. If by chance the cleavage is deep as when the periosteum is removed with a sharp elevator and the bone scraped, the periosteum is very sure to be actively osteogenetic. On the other hand, if the periosteum is stripped off or removed with a blunt instrument, the cleavage is not likely to be deep enough to include the osteogenetic layer of cells on the periphery of the compact bone. In that instance the periosteum would constitute a connective tissue limiting membrane (Macewen) only and slight or no osteogenesis would occur.

12. It is believed that periosteum and marrow substance, on the bone-graft, serve an important rôle in aiding to establish an early and more abundant blood-supply from recipient bone to the transplant.

Other studies in bone growth, periosteal transplantation, etc., have been carried on, coincidently, as will appear.

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THE PROBLEM OF TEACHING GENERAL MEDICINE*

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The Committee on Pedagogy was authorized by the Cleveland meeting of our association in 1908. The first report was made by Dr. H. B. Ward in 1909. This was an excellent discussion of the qualification of teachers and methods of instruction. The report was properly embalmed and laid away in that mausoleum entitled "Proceedings of the New York Meeting." Most of you were present at the obsequies. The reports of 1911 and 1912 were made by Dr. G. H. Hoxie. He considered the crowded schedule and the desirability of leaving the students a little time to think. He made some practical suggestions along these lines. These were respectfully listened to by the same men present to-day, but few or none of his ideas have been carried into effect. The reports were injected with formaldehyd and laid away in the archives. Recently the state of Pennsylvania has decreed that any medical school to be in "good standing" must have a required schedule of thirty-five hours a week. No one has even opened the tomb to see whether the Hoxie reports have turned over in their coffins at this outrage on pedagogic principles.

IS FURTHER DISCUSSION USEFUL?

Seriously, this raises the question whether our reports and discussions do any good. Those gathered here are chiefly deans or secretaries of medical faculties. We all recognize the existing conditions. We all know where lie the chief difficulties to effective teaching. We all know Mr. Flexner's inexorable conclusions. We are familiar with the constructive work of the Council on Medical Education. We remember the valuable discussions on this floor. It seems strange that so few of the workable suggestions from all these sources have filtered through into practical application. The physiologic mechanism of medical teaching is apparently surrounded by a semipermeable membrane, and the big molecules of pedagogic principles find great difficulty in diffusing into the cells. The membrane is partly ignorance, partly indifference, partly conflicting interests. Is there anything we can do to assist absorption? Will a further digestion help bring the unassimilable colloids into solution? Can the membrane itself be made more permeable?

President Harper used to say that a chief function of a university faculty was to educate itself. Probably that is also true of this college association.

Now, one of the established psychologic principles lying at the basis of education is repetition. It is the foundation of habit. It rests on the physiologic generalization that repeated stimuli are more effective than a single stimulus, and that each stimulation makes easier the next one. Several of our correspondents have stated that we need not be afraid of repetition in our course of study. In the main we believe that this statement is correct. At any rate we may make this principle the excuse for another discussion of clinical teaching. It is true no new discoveries can be looked for. The most to be expected perhaps is that, like the katydid, we shall say "an undisputed thing in . . . a solemn way." But if a little more pressure, a little more digestion, a little more stimulation will help to bring the long-recognized food into actual relation to the working cells, our faculties and teachers, then the work of this committee will not have been wholly in vain. May I carry the homely metaphor further by asking each man present, so far as the results of digestion seem acceptable, to serve as a circulatory system by which the pabulum of our conclusions may be brought home to his own institution and instructors, by whom alone it can be made effective for nourishment and growth?

THE PROBLEM INVOLVED

I have taken as my topic the "Problem of Teaching General Medicine." It seems to me that the matter of

* Read as the report of the Committee on Pedagogy before the Association of American Medical Colleges, Feb. 26, 1913. The committee consisted of Dr. E. P. Lyon, St. Louis, chairman; Dr. Isador Dyer, New Orleans; Dr. George Blumer, New Haven; Dr. Charles M. Hazen, Richmond, and Dr. W. S. Thayer, Baltimore.

preliminary education has been fairly threshed out, and that this association will soon come to the irreducible minimum of one year of college added to a high-school education. It seems, further, that medical educators are agreed that the fundamental medical sciences must be taught as science and by scientists. We recognize that our students must learn to know and to do, and the laboratory method has come to stay. We know what kind of laboratory teachers we need, and where to find them, and how much we must pay. We know what equipment they need, and most schools have made fair provision in this direction.

We know further that an army of young men is every year turned loose into the clinical subjects there to have their carefully built up habits of thought tumbled and scattered like block houses in the children's playroom. After the intensive discipline of the laboratory branches, we find them dissipating their energies among a dozen subjects with no idea of relative values. We find them wearing out their eyes trying to see surgical operations from the peanut gallery, their intellects trying to assimilate half-digested theories and their ham-bones sitting out interminable lectures. Then we acknowledge with dismay that our average graduate is far from being a scientific physician and tends rapidly to degenerate into the typical routinist.

That this is a criticism of universal application no one will claim. That it is one of very wide application is certain, and no one has advanced it more trenchantly than Professor Graham Lusk. "The great trouble with medical education," he says, "lies in the ill-educated men who conduct the last two years of the medical course." Again he says, "It is a well-known fact that we can produce laboratory men in American laboratories who can do work equal to that which is accomplished in other countries of the world. It is also a well-known fact that we have produced, up to the present, no man who, in the subject of general medicine, stands anywhere near to being a prototype of Friedrich Müller, Krehl or Romberg." If this is a true picture, we may well take notice. We may well acknowledge the subject worthy of careful consideration. And, first of all, we may properly attempt an analysis of the problem and try to decide the methods of attack by which it may be solved.

OUTLINE OF DISCUSSION

Educational authorities are accustomed to consider their subject-matter under the two heads, aims and methods. The first topic constitutes the content of what is commonly called "principles of education," while the second finds expression in "educational psychology" or "methods of teaching." Education means change. Things are to be brought about that otherwise would not happen. We may change, that is, educate, any power of body or mind. The study of aims in education is for the purpose of deciding what powers and habits should be developed and in what direction the change should be made. These being decided on, the methods most likely to prove effective must be adopted.

In accordance with these ideas an outline as applied to general medicine was prepared and submitted to about 150 deans and teachers for criticism and discussion. About thirty careful and enlightening responses were received. For the large amount of time and thought given by the authors of these letters the committee desires to express thanks. These discussions are here for examination by anyone interested, and they will well repay careful perusal. It is the intention to bind them permanently, so that they will be available for any future committee or student of this question. There is much more in these letters than we have been able to embody in this report. What I shall say is founded on these discussions, on the excellent report of the subcommittee on medicine of the Council on Medical Education, on Mr. Flexner's book on "Medical Education in Europe" and other data.

AIMS OF GENERAL MEDICINE

From a study of these authorities we may formulate the aims of a department of general medicine under seven heads:

1. To give a broad and comprehensive presentation of the essential, fundamental facts pertaining to the causes, effects, recognition, prevention and cure of disease and to correlate these facts with the fundamental sciences.

2. To demonstrate and develop the technical skill by which alone the facts are applied in the diagnosis, treatment and investigation of disease.

3. To develop the powers of observation, judgment, thoroughness, persistence and precision by which alone the facts and methods can be intelligently and fully recognized and applied.

4. To develop the powers of expression, oral and written, by which alone the results of observations may be made available to others either at once, or for future reference.

5. To instruct students in the use of medical literature and develop habits of study by which alone the graduate will continue to grow in knowledge all his life.

6. To give the student as much knowledge as possible of human beings into whose life he must enter in a much broader, more sympathetic relation than that of engineer to machine.

7. To inculcate the ethical and professional ideals of honor, self-respect, altruism and social consciousness without which medicine degenerates into a business or a trade.

While the other departments of instruction will properly assist in all these aims, their systematic realization must rest on the department of medicine, the trunk of the tree, the sine qua non of medical education.

It is at once seen that this is a large program. Several of our correspondents have well said that it means the work of a lifetime or of several lifetimes. But of course we must limit our endeavors to what can be given to average students in the time of a standard medical course. The words "essential" and "fundamental" in our statement of aims are intended to imply this limitation. And we must at once acknowledge that if the ordinary course of study is too short to develop the essential, fundamental knowledge, technical skill, habits and ideals necessary to start the young graduate as a fairly safe and competent practitioner, our immediate duty is to bring the course of study up to the necessary standard. The discussion of the fifth or hospital year must in the last analysis rest on the determination of the inadequacy of the present standard.

GENERAL MEDICINE AN INCLUSIVE TOPIC

With our program thus formulated and delimited several things become clear. Since the fundamental facts are to be included in general medicine, no distinction should be made at first between medicine and surgery. All the diagnostic methods should be taught, and surgery should branch off when a special therapeutic method is indicated. Also since general medicine

includes the fundamental facts it must embrace general therapeutics and the essentials of neurology, pediatrics, hygiene and other so-called special branches.

From our formulation of aims or principles another conclusion is inevitable. Technical skill, or knowing "how," is put parallel with theory, or knowing "why." Moreover powers of observation and deduction, or knowing "how to know," are of parallel or even greater importance than technical skill and knowledge of theory. Now no one ever learned how to do anything without doing it. No one ever learned to observe correctly without practice in observing. No one ever learned how to record his observations except by repeatedly recording his observations.

All this has been said so often that you can all sleep comfortably while I speak, just as we all sleep comfortably while someone declares without passion two such profound generalizations as these: "One person in ten dies of tuberculosis," and "Tuberculosis is a preventable disease," just as good citizens sleep comfortably when told that they have the worst municipal government in the world and are asked, "What are you going to do about it?" Once in a while along comes a Flexner and shouts in our ears, whereupon we turn over in bed and snooze off comfortably again on the other side.

RESPONSIBILITY OF MEDICAL TEACHING

The truth is that if our graduates in medicine are insufficiently trained, we — the group of men here present — are responsible. We either haven't the brains or the backbone to change things. In either case our slumbers should be fitful and our working days fuller of activity. Really, gentlemen, this is serious business; and I for one, when I hear that one of our graduates has undertaken a surgical operation for which he was not prepared, seem almost to have stuck a dirty finger into that patient's wounds. When I hear of fee-splitting I feel like a thief. When I hear of an avoidable death I have some of the qualms of a murderer. The question, "What are you going to do about it?" shrieks for an answer. This question opens the discussion of methods.

METHODS OF TEACHING: LABORATORY METHOD

Concerning the laboratory side of general medicine there is unanimity of opinion that a certain acquaintance with the methods can be gained through laboratory courses of the same nature as those conducted by the ancillary sciences; namely, systematic work with a considerable number of students in laboratories not immediately related to the hospitals. This is the way in which clinical pathology is ordinarily taught to juniors. While such a course is justified, there is equal unanimity among experts that such work constitutes only a beginning, and that the continued application of the laboratory methods in the first-hand study of actual patients is an absolute necessity. This necessity must be borne in mind when we come to the consideration of teachers and equipment.

For the present let us turn to the other forms of teaching applicable to general medicine.

DIDACTIC LECTURES

Since a thorough acquaintance with facts is one of our aims, it becomes apparent that the didactic method may be employed, provided the students have the opportunity of acquiring the objective basis by which the matter of lectures or text-books is made intelligible. By this objective substratum I mean that first-hand knowledge of facts, terms and methods by which alone wider discussion and excursion can be comprehended — by which alone words can be vivified and descriptions visualized.

IMPORTANCE OF OBJECTIVE KNOWLEDGE

To me as a teacher of physiology this subject is almost a fetish. I spend probably a fourth of the time of my students in the systematic development of objective knowledge of the methods and principles of this science, but I do not attempt to teach it all from an objective standpoint. I find that when my students have a moderate working acquaintance with the graphic method, they are in a position to understand and interpret heart tracings that they have not made themselves; that if they have studied the process of secretion of the salivary glands, they can visualize the process in the stomach; that if they have seen the effects of secretin on the pancreas, the discussion of the ductless glands without demonstrations becomes intelligible.

Now it is apparent that the fundamental sciences supply in part the objective substrata for medicine. For this, in part, the students have pursued anatomy, physiology, chemistry and pathology. But it is equally apparent that a part of the experiential basis must be supplied by the department of medicine. The student must early see some sick people. Else "fever," "dyspnea," "râles," "contusion," "abscess," "rigidity," "edema" and many more words remain words only, parrot words, learned by rote, glibly repeated it may be, but lonely and unassociated in the mind. Hence we have the argument for some clinical instruction, as intimate as may be and as early as possible, surely by the beginning of the third year.

Concurrent with or following (but not before) this observational basis can come systematic didactic instruction. Whether by lectures or by recitations from a text or by a combination of the two seems from a study of our authorities to be a matter of local conditions. To me it appears that the working out of this problem should take into consideration our fourth and fifth aims in regard to the development of powers of expression and habits of study. Furthermore, the problem should be worked out in relation to other departments and divisions. For example one department may well work from the text-book with frequent oral and written exercises and consequent development of ability to read and to express. Another department may properly use lectures and develop power to recognize essential points in discourse and make good notes. Whatever be the detailed system, every one agrees that the didactic method is to be employed with discrimination as to subject-matter and sparingly in relation to the total instruction.

SELF-CRITICISM AS A FACTOR IN EDUCATION

I believe, however, that one recognized psychologic fact should not be lost sight of; namely, that self-criticism of motor responses is easier than self-criticism of purely mental functions. A child can more easily tell whether he has made a right angle correctly than whether he has defined it correctly. A man may make a good machinist of himself. He can with difficulty make an electrical engineer of himself. Still less easily can he make a scientist of himself. The broad foundation of theory and of generalization must be laid by systematic instruction in the school. Your average graduate should constantly improve his technical skill in his life-work; he will be less likely to add

to his scientific knowledge and to his ability as a thinker. This is not saying that we should teach the latter to the exclusion of the former. But it is saying that in our zeal to produce a competent technician we must not narrow the mental horizon — that we must not submerge the science in the art. This is a real danger, to be borne in mind in every readjustment of curriculum by which didactic instruction is supplanted by technical instruction and in all teaching, especially of the latter kind.

CLINICAL LECTURE METHOD

Taking up the second method of instruction, the clinical lecture, there is a surprising majority expression among our correspondents as to its limited applicability. It is criticized, on the one hand, as not furnishing systematic instruction; on the other hand, as not affording intimate, first-hand information to the students.

The first criticism is met in part by saying that the lecturer must be in command of a very large clinical material from which to develop a systematic course (which is easier said than accomplished). The first criticism is also answered in part by saying that the student in his after-life will have to meet his cases as they come and must be prepared to open his mine of knowledge at any spot and at a moment's notice. The second criticism is partially met by having certain students participate, either by being abruptly called to the arena or, better, by being afforded opportunity to examine the case in advance. You will all remember, however, Mr. Flexner's description of the ineffective working of the *Practikant* system in the highly organized clinics of Germany. It can hardly be so good, on the average, in our less organized and controlled hospitals.

Nevertheless the clinical lecture has ardent defenders; and much of its success must depend on the care with which the system is worked out, and on the way in which the student-participant is compelled to work up and present his part of the exercise. That the method may be used in moderate degree should be admitted.

SECTION TEACHING AND INDIVIDUAL WORK

Two other methods of clinical instruction remain to be discussed; namely, so-called section teaching and individual work in hospital wards. It seems to me that many practical considerations demand that the two methods be combined. Abstractly we may say that the student should work out everything by himself in ward and laboratory. Practically, it is acknowledged by all that the student must have supervision and help. Abstractly, we may say that all instruction should be individual. Practically, we cannot furnish instructors enough; and there are other difficulties. Abstractly, we may say that the teacher's criticism and discussion of a student's work pertain only to that student's work. Practically, we know that a valuable by-product of that discussion and criticism may fall to others who are near enough to know the facts under consideration. Teaching in small groups, therefore, appears to combine the maximum of efficiency with the minimum of supervision and expense.

The maximum of value in this type of sectional instruction will be found neither when the teacher demonstrates everything, nor when he simply turns the student loose in the ward and laboratory and says, "Do so and so." The maximum of value is somewhere between these extremes. It will vary in position with the advancement of the students and with other conditions. We need not try to locate it exactly. It is of more importance just now to decide how many students a teacher may properly supervise and the length of time to be spent in this work. Our correspondents are united in affirming that the sections must be small. Twelve is the largest number named, and a big majority favor sections not larger than six. They assert further that two or three (or four) hours a day for six (or seven!) days in the week and over a period of eight to twelve weeks should be spent by each senior student in ward and laboratory work on actual cases of disease.

Even admitting that under good conditions the students can work part of this time by themselves (and the regime to make this possible needs to be very good indeed, if proper regard be had for the patients concerned), it is apparent that here is a very large problem of organization, equipment and teaching. This problem has been stated so often that some of you are doubtless whispering, "Katydid," but a far better slogan is "What are you going to do about it?" What are *we* going to do about it?

MEDICINE SHOULD BE A UNIVERSITY DEPARTMENT

We must, complacent gentlemen, *we must* organize this inexpressibly important teaching on a university basis. At the present time, as Dr. Blumer has frequently said, it is like chemistry forty years ago. At the present time, in many of our schools, sick people are like the instruments in the physics cabinet thirty years ago bearing the notice, "Students must not touch the apparatus." First of all, we must open the cabinets, that is, the hospitals. Secondly, we must organize the teaching so that students may properly use the apparatus, that is, the patients. Incidentally we shall find, as did physics, that many more teachers and much more apparatus are needed the instant that the university type of instruction is adopted.

THE TEACHING HOSPITAL

I can take time but to indicate in brief symbols, as it were, this aspect of our problem. The university hospital is what we are all praying for; but so far but few of our rich men or rich states have been influenced to double, yea, quadruple, the results of their philanthropy by endowing institutions which both minister to immediate unfortunates and also, through educational facilities, radiate blessings to unnumbered others in sick beds far removed in time and space. Meanwhile let us not only pray but work.

Organization, tact and persistence will do much. Scattered and inadequate hospital privileges will bear fruit if cultivated and fertilized. By fertilization we mean all that the medical school can do for the hospital. Have not the schools heretofore asked much and given little? The relation should be *quid pro quo*. And in addition to moral support and other help, the schools may well afford to pay money for their clinical privileges. Often a very moderate annual sum will secure affiliations of great value. The school may properly conduct the laboratory of the hospital or furnish a paid pathologist or support a number of free beds. Gradually the schools can gain control of the staffs; but even pending that all-to-be-desired day, tact and weight of opinion may secure working cooperation. The staff-surgeon has the reputation, it is true, of lying full length in the trough while he eats. But the medical man has often no more than two legs in his victuals; and the man trained a generation ago, who ought not to try to teach under the new conditions, will some-

times move over a bit to allow the young instructor a chance — on the charity cases!

Seriously, while admitting the real difficulties above indicated, I must express my appreciation of the unselfish zeal of many of the older type of medical teachers and of their willingness to give up their authority, when the good of the school demands the sacrifice. It is ours to demonstrate that a new prophet is come and the sacrifice is due.

PRESENT DEFECTS IN TEACHING MEDICINE

A word only on the teaching side of our topic. At present, in most of the schools of this association, the teaching of medicine is as far from the university standard as Dr. Cook from Captain Scott. A glance at some schedules which I studied would demonstrate this all too easily. In one school for example there are two "professors" of medicine. One is scheduled for one lecture a week. The other conducts a clinic two hours a week. The first gives one-fiftieth, the second one twenty-fifth of his working time to teaching. Contrast this with the professor of anatomy who teaches, according to the schedule, ten hours a week; and the rest of whose time goes to the constructive work of his department and, as shown by his publications, to investigative work in his science. Take another school, three professors of medicine teaching two, two and three hours a week, respectively. Take another, one "professor," one lecture; the rest of the work by subordinates, all practitioners.

Or take up budgets! One school spends yearly for medicine (total budget), $950; for anatomy, $3,750; for pathology, including bacteriology, $4,600; for physiology, including pharmacology, $3,800. Another school: medicine, nothing; anatomy, $5,600; pathology, $7,500; physiology, $4,500. A third school: medicine, $200; anatomy, $7,000; pathology, $8,000; physiology, $5,500. A fourth school: medicine, $1,100; anatomy, $6,000; pathology, $4,500; physiology, $6,600. Of course other budgets read quite differently; for example those of Stanford, Western Reserve, Minnesota and Michigan. In one school, to its great advantage, a strong young man has been put at the head of medicine on practically a full-time basis. And the salary for this man was voluntarily surrendered from the already inadequate budgets of the fundamental departments. This is mentioned as showing how great is the need to strengthen the department of medicine, and what sacrifices may sometimes be deemed necessary to do it.

NEED OF MONEY FOR PAID TEACHING

Gentlemen, complacent gentlemen and complacent public, you have got to spend money on the teaching of medicine. You cannot expect a busy practicing profession to teach; and even if you had a right to expect it, this profession could not fill the bill; for the profession of medicine is not the profession of teaching—and "no man can serve two masters." Practitioners may give valuable help but they cannot bear the larger burdens.

But if you had the money—which admittedly you have not — how would you spend it? As everybody knows we have not bred the self-perpetuating race of clinicians and teachers which has made the German medical schools the models of the world. We have produced a few promising men, already well placed. But the wise school, attempting to build up medicine on a university basis at the present time, will look for a young and vigorous "sport" (I am still using the language of the breeders), and will hope from him to develop the new species of clinical teacher. Select a strong young man who has done some research work in the fundamental sciences and has had a good clinical experience, and tell him to swim or sink. If he sinks or if he drifts into the maelstrom[1] of practice, let him go and get another idealist still in his early thirties. Pay him well for his services. Pay him more than the laboratory head, if you must. I say this with misgiving, for I cannot think one kind of service intrinsically more valuable than the other. But on the other hand, the law of supply and demand cannot be denied. Surround this young man with other young men, some full-paid; others, part-time. Yes, and with old men too, men of experience, vision and zeal, who are willing to cooperate for better things. Presently we shall think the millennium is indeed here!

TEACHING ETHICAL IDEALS

Finally let us recall the seventh of our aims formulated for a department of medicine: To inculcate the ethical and professional ideals of honor, self-respect, altruism and social consciousness without which medicine degenerates into a business or a trade. Is there not need that something be done in this direction? Does not the wide-spread distrust of the medical profession indicate that something should be done? Does not the unrest in the profession demand that something be done? Can we deny that many of the profession are money-mad? Does not cut-throat competition beat the oil business in its worst days? As deans you doubtless often receive from doctors offers to sell their practices or notices of desirable locations for young physicians. Did you ever get one that told of the good a physician could do in that community? No; they say rather, "Practice worth $6,000 a year. Collections good." Or they say, "Little competition here. The other doctors are old fogies. I came here six years ago without a cent and have saved $15,000."

Gentlemen, the need of higher ideals is very great. But can we suggest methods which will at all help to meet the demand?

If you will pick up almost any book on principles of teaching you will find a chapter on "Responses of Conduct" or "Moral Training." You will find that the psychologists trace the elements of character very far in the complex web of existence—farther indeed than the life of the individual, for there is evidently an important hereditary factor. "To expect school education to determine moral development," they acknowledge, "is like expecting a city water-supply to abolish all sickness." But at the same time they point out that the teacher can "do a little of what so much needs to be done." And we think the department of medicine also can do a little of what so much needs to be done in its sphere of education.

TEACHING BY EXAMPLE MOST IMPORTANT

The department of medicine enjoys the advantage of being able to teach by example even better than by precept. It can place before students worthy examples of men devoted to science, the advancement of knowledge and the amelioration of suffering. It can develop the instinct of workmanship. It can teach a man to do honest work. Any man who learns to do something useful is a better man than he would have been other-

1. The metaphor would seem to imply that this athlete may swim moderately in "practice" waters, provided he does so for his own development and not to the weakening of his powers for the race in which he is entered.

wise. Moreover an overpowering interest in his occupation keeps him from distracting and lowering influences. This interest the instructors in medicine should arouse. Says Thorndyke, "A man's conscience is not the producer but the product of his career." If this be even partially true, habits of thoroughness, persistence, punctuality and patience have real moral value. These habits the instructors in medicine should help to form in their students. The field of preventive medicine should be traversed as the great altruistic fighting-ground of our science. Finally by a host of shining lights such as Pasteur, Livingstone, Walter Reed and Ricketts, it may be shown that the enduring stars in the esteem of mankind are the morally great and not the flaming rockets of worldly success.

We as deans and officials have our part. We help to select the teachers and thereby accept a great responsibility. I remember an instructor who never wrote a prescription on the blackboard without saying, "This will be worth two dollars to you fellows"; another who frequently spoke of his large practice and admonished the students not to be afraid of any kind of surgery when they went out of school. Both these men, I am glad to report, have discontinued their activity as medical teachers. I know a surgeon who recently, for reasons of his own, sold his big limousine and now drives to the college in a little runabout. I venture the suggestion that that surgeon is now a better teacher!

CONCLUSION

The weakest part of medical teaching is general medicine. It should be the strongest. It should be a university department, like the other divisions of biologic science. It must be given its laboratory: that is, a hospital. It must be given its equipment. It must be given its material. It must be given its personnel; that is, paid scientists and teachers who devote their time to this work. It must have money. The problem of teaching general medicine is the great problem in medical education. You have built a good foundation, gentlemen; but you have put on a temporary roof at the height of the first floor, and you are holding divine services in the basement. It is time to build the church.

THE TEACHING OF PSYCHIATRY *

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A great deal has been written and spoken in recent years on educational reform. Much has been mere intellectual soapsuds, beautiful as the prismatic colors on the surface of a soap-bubble but having no more substance. Some of the criticisms of present methods have been wise, sane and practical, written by competent men not hunting for popular acclaim, and it is to be hoped that in the slow but steady progress of time, a progress rarely helped by noise, the opinions of these men will prevail, and that the reforms which they have suggested will be put into effect.

To-day, however, the quiet man who knows, he whose words should carry weight and have authority, has less chance to be listened to than that other man who knows how to write or speak in the style of a newspaper headline. The newspapers and the cheap magazines have attempted to usurp the intellectual rulership of the country and have caused much commotion with little motion forward. The more intellectual classes, who rarely read the papers, have no realization of the tremendous influence the printed word has in molding public opinion. The press is the bible of the masses and their faith is unshakable.

In this day of unrest, largely emotional, and only in minor degree intellectual, when the people have decided that everything that our forefathers thought right is really wrong, when we are informed that everything that has been built up must be torn down, when all our energies must, as we are daily told with all the fury of hysteric preaching, be wholly devoted to "the moral uplift" of everybody else, forgetting that a man's first duty is to himself, when everything is made a moral question whether it really has anything to do with morals or not, when authority has no standing in the court of public opinion, when the public dares to be a court, and, what is worse, has power to enforce judgment, when the amateur holds a higher place than the expert, when to have devoted a lifetime to the study of any subject proves poverty of mind, when we must have a new remedy for every ill every day, and when we must bring the millenium in six months or die in the attempt, even the poor, quiet, harmless students of minds diseased must be victims of the triumphant muckrakers and are expected to sit in sackcloth and ashes and do penance for not teaching their pupils all the newest formulas for mentally and morally regenerating the whole world.

I have been led to use the above rather truculent and perhaps petulant introductory words because for a long time I, with many others, have had to listen to much thoughtless criticism on teaching, and especially on the teaching of psychiatry to medical students, and finally have been made to feel that something ought to be said by one who is, in the technical sense, not a progressive. I have learned, as every one must, much from criticisms and suggestions made by teachers and men experienced in educational matters, but more than once my usually calm temper has been ruffled when I have been compelled to listen to long lectures on educational reform by enthusiasts innocent of training and experience whose ignorance was crass and their conceit colossal.

Now I wish at the outset to make several confessions: First, I have never personally known a genius who devoted himself to teaching psychiatry. Second, psychiatry is the most backward of all the sciences fundamental to the art of medicine. Third, the time devoted to mental diseases in medical schools is too short to teach anything beyond the alphabet. Fourth, I have not yet been convinced that the study of formal psychology throws any light on psychiatry. By "formal psychology" I do not mean brain physiology or sociology, or pedagogics, or social politics, but that department of knowledge which takes for its subject the question "How does the normal brain think?" I am well aware that the newer psychology does not concern itself with this matter but with education, especially with making the road to knowledge easy, with training the feeble-minded so that they may be more competent to be vicious and criminal, with questions of social policy such as the proper treatment of criminals in order that we who, as we are told, have simply been canny enough to keep out of jail may be proper companions for them, and with the invention of religions with God left out. No serious-minded student of psychology will be offended at this statement. On the contrary he knows and appreciates at his true value the type of man of whom I am speaking.

* Read at the meeting of the Philadelphia County Medical Society, Feb. 26, 1913.

Without further preliminary let me come to the gist of the matter and take up the question of the method of teaching psychiatry. I must first beg you to believe that though this paper concerns myself, concerns how I teach, or at least try to teach, it is not written with any desire to obtain advertisement, nor with a feeling of self-content with what I have done but solely with a view to let everyone who may read it know that psychiatry is to a certain extent taught, a fact which is not generally known, in some American medical schools and that the men who teach are doing their duty conscientiously. I use my own course at the University of Pennsylvania as an illustration of what is being done in teaching psychiatry, not because it is the best, for I do not know that it is, but simply because the University of Pennsylvania is the only school with which I am thoroughly acquainted. I know that there are other schools in which excellent instruction is given. I am quite cognizant of my own defects.

The practical questions in the teaching of psychiatry are: 1. How many hours should be given to it? 2. During which year or years? 3. What proportion of the teaching should be didactic, what clinical? 4. What, if any, preliminary, premedical subjects should be required or are desirable? 5. What particular subjects should the instructor attempt to teach? I shall first give an outline of my own course and then take up a brief discussion of each of the above questions.

METHODS IN USE AT THE UNIVERSITY OF PENNSYLVANIA

Whatever specific thing a man does, whatever his work may be, the manner of his doing it is influenced consciously, and still more unconsciously, by his general and complete attitude toward life. This is true of the teacher as of every one, and hence my course of teaching depends on my conscious and unconscious outlook on life as well as on my specific opinion at to what a physician is. As to the former, no man knows himself nor what his real outlook is, but as to the latter, I am strongly of the opinion that the function of a physician is to take care of the sick; whatever else he may do is outside that primary purpose and therefore my whole course is intended to teach the students that one thing. The important thing in caring for the sick is to learn how to discover what is the matter with them; therapeutics is then easy, though official therapeutists will not admit this, and hence great stress is laid on diagnosis, in other words, how to use the senses and when to use and how much to depend on instruments of precision.

To come to more particularity, I have thirty-two hours, one hour weekly, with the men in the third-year class throughout the year, and ten hours with each third of the fourth-year class during the second half of that year. In my course to the third-year men, I begin with five didactic lectures on the causation and general symptomatology of insanity. In these lectures I try to show the students that, though we know nothing of the processes occurring in the brain producing thought whether normal or abnormal, there are certain known predisposing and exciting causes of mental disease. I stimulate them to study biologic chemistry because by means of it will be discovered the real cause of mental disease.

In the lectures on symptomatology I endeavor to impress on the students the necessity of a clear conception of symptoms, describe and define them, and point out how different symptoms are grouped together in life. Beginning with the sixth lecture the course becomes clinical.

In the clinical lectures I do not follow the theoretically logical method of taking first the simple types of insanity and proceeding to the more complex as is the proper and scientific method of treating the subject in a systematic text-book, but take a few of the great types and group others around them, though often they are not the insanities which could be mistaken for each other. There is not time for me to give reasons for this method, to explain why, for example, paranoia and melancholia should be studied in association. I have found, however, that such a system works out well.

I begin with paresis as the great classical type of insanity associated with gross organic brain disease. Having finished with it, I take up the other insanities associated with gross disease, arteriosclerotic insanity, that associated with apoplexy, etc., and point out the similarities and differences of each. In contrast to these I next take up, still clinically, paranoia as the type of the great essential insanity without gross brain lesion and group around it mania, manic-depressive insanity and melancholia and show their likenesses and differences. I then take up the matter from an entirely different point of view and give clinics showing the influence of age on symptoms and compare the insanity of adolescence with the true melancholia of middle life and with the insanity of senility. Again, I take a different point of view and study a few of the insanities which have a definite, single, exciting cause, such as alcohol, cocain, lead, the poisons of the puerperium, and of the acute infectious fevers. The material at Blockley is so large that I am enabled to make the clinics follow each other in systematic order. Throughout the whole course I emphasize the fact that soil is more important than seed, that only certain natures can become insane. Here ends the clinical instruction to the third-year men. The few remaining hours are devoted to didactic lectures on treatment, classification, the medicolegal and sociologic aspects of insanity, and the means of prophylaxis.

In the fourth year the class is divided into thirds. I give neither clinics nor didactic lectures but have patients brought in and I and one or another of the students examine them and I give an informal talk concerning diagnosis and treatment. During his course each student sees, talks with and examines patients suffering from the common insanities.

Very serious criticism is often made of the teaching of therapeutics in mental disease. The gentlemen who write popular articles for the magazines have impregnated the public with the idea that adenoids, lateral spinal curvature, ocular defect, and other like things are the cause of all insanity; that feeble-minded children can be made strong-minded by some simple surgical operation, such as cleaning out blocked nasal passages or some other similar act and that moral degeneracy can be cured by trephining the skull. Every teacher of psychiatry is repeatedly taken to task for not teaching such nonsense. You would be astonished if you were told the number of times teachers are asked by self-appointed advisers to give many hours to fads. The real evil of this matter, though it does not properly come into the subject of this paper, is the immense harm such talking does to the near relations of the insane. They are buoyed up by hope. Their emotional fall into despair when such hope proves unfounded is terrible. A fundamental object in teaching therapeutics is to show students that here, more than in any other disease, it is the man who is treated, not the disease alone. My

greatest regret is that I have not time to teach practically methods by baths, massage, etc.

Now it is impossible for a man of average mind, or even of mind beyond the average, in such a small number of hours, to take in, digest, absorb and remember all that is given to him in this course, though really it is not so much as it looks to be on paper, and it is not expected of him. The problem is, how to handle the matter so that he will retain as much as possible. Constant repetition helps much. A student who is told, every time a patient comes in, that the first thing he must do is to look and not look so closely that he will not see something which really is staring him in the face, will finally learn how to observe. The student who has it constantly reiterated to him that the unconscious behavior of the insane always throws some light on the case, even in such apparently trivial matters as the way a patient walks into the room, will soon begin to observe conduct and further will learn deduction—the method of Zadig. The student who sees patient after patient examined methodically as to memory, delusions, hallucinations, emotional tone, mode of speech, manner of acting, and for physical signs will soon learn methods. Now the teaching of method is more important than the teaching of facts, for he who knows methods will teach himself facts and method is the thing every wise teacher lays most stress on, not so much by precept as by example, not so much by telling the student as by doing it and having him do it.

What is my end and aim in this course? It is not to make alienists; that were impossible. It is not to teach the theories of psychiatry; they are too numerous and, if I dare say it, too barren. It is merely to teach the alphabet of the science, to dig the cellar, to lay a sound foundation for a very simple building. This is my end and nothing more. I give no clinics on rare diseases. I give no lectures on philosophic hypotheses. I am a mere nursing mother to intellectual sucklings and I give no stronger food than milk.

The university does not possess a hospital for the mentally diseased and all the instruction in psychiatry is given at the Philadelphia General Hospital (Blockley). Curiously enough, the trouble is that material is too abundant. Philadelphia does not pay enough money for enough assistants to make it possible to study the patients there thoroughly. I hope that the university will some day have a small psychiatric hospital of its own. It should be a separate department with its own building. The proposition advocated by some that wards in general hospitals should be set apart for the insane is, for reasons that I have not time to give here, impracticable.

TIME TO BE GIVEN TO THE SUBJECT

Let us pass now to the five questions. First, how many hours should be given to psychiatry? We are confronted with the fact that a day is a fixed, inelastic period of time and by the further facts that we cannot extend the number of years devoted to medical study and cannot reduce the number of subjects studied. Of course every teacher wants to have all the hours for his subject he can get and I should like to have an hour daily throughout both third and fourth years. My mature opinion is, however, that the time I have is about as much as can be devoted to the subject in any school which gives a proper amount of time to the great subjects of practice, surgery and obstetrics. I think if a man will devote himself entirely to teaching the alphabet, to laying the foundation, so much can be done in this time.

Second, during which year or years should instruction be given? We can dismiss this speedily. There can be no question to-day that the time should be in either the fourth year alone or in the third and fourth years. No medical school worth the name permits any purely medical subjects to be taught in the first and second years.

CHARACTER OF THE TEACHING

Third, what proportion of the teaching should be didactic, what clinical? I am one of those men who some years ago wanted to abolish didactic teaching altogether and have everything clinical and wrote a rather emotional paper on the subject. Since then I have been forced to conclude that I was too radical and that there is a distinct place for didactic teaching. Certainly such subjects in phychiatry as the causes of insanity and general symptomatology can best be treated in formal didactic lectures. Further than this even, I think it is wise to give a didactic description of each type of insanity before proceeding to its clinical and ward class study.

Fourth, what, if any, preliminary premedical subjects should be required or are desirable? I am here concerned with subjects preliminary or introductory to psychiatry and not with the question of the proper educational requirements for admission to a medical school. The only subject which has ever been suggested is psychology. The old psychology certainly does not make the study of psychiatry any easier or any clearer, nor does it hold out any hope that it will solve any of the problems as to the real causation of insanity, which after all is the great question ever confronting us and, so long as it is unsolved, preventing progress. Cerebral physiology, the study of sensation including the special senses, the reflexes and speech, is not psychology but physiology and is best taught by that chair. These things studied in a general way as a part of biology are useful as a preliminary study to all medicine and are required in the better schools. They are of great use in training the youth in biologic methods which the medical student of to-day must use from his very entrance into the school and because they teach him a vocabulary that he would otherwise have to learn in the medical school, but their special and exhaustive study is best left in the hands of the professor of physiology.

Of recent years the whole content of psychology has changed and now its students occupy themselves with subjects of an entirely different kind than formerly. The popular psychologist of to-day, and he is the man who has most influence with the public, if he wishes to be thought up-to-date, studies, or at least writes about, matters of education, especially the education of the feeble-minded, a class which some of us think should receive no book learning, and numerous other subjects affecting the general welfare of the race, such as heredity, the rights of children, making cortical cells grow where none were planted, the weighing of souls, thought transference, magic, both white and black, and how to make silk purses out of sows' ears. Frankly, I do not think that an undergraduate, whether in college or in a medical school, should be expected to devote time to these matters. They are, some of them, subjects of great importance which require years of study really to learn anything about, and others are things wise men only play with or ignore, but none of them is preparatory to medicine. Some of my best students have been men who had had a thorough training in and taste for the humanities and I think such training is

desirable for any youth who has the mind to receive it, no matter what his life-work is to be, but I am very old-fashioned. I am sometimes inclined to believe that the study of Don Quixote, with special attention to the wisdom of Sancho Panza, would do much to develop the reasoning power of many youths and thus help them in medicine.

SUBJECTS OF TEACHING

Fifth, what particular subjects should the instructor attempt to teach? I think one great mistake that many teachers of all the specialties make is that, instead of devoting their time to the humdrum teaching of fundamentals, they are prone to succumb to the temptation, always hard to resist, to give brilliant clinics on interesting cases of rare diseases. This is proper for post-graduates but the student who has no clear conception of what a delusion is should have that well beaten into his cerebral cortex rather than sit in open-eyed wonder and adoration, but with no comprehension, before a man discoursing learnedly on a patient showing the newest symptom-complex recently imported from Germany.

One criticism often made is that students are not taught the philosophy of mental disease. As I do not think that such a thing exists it would be rather difficult for me to teach it. In regard to this whole matter of philosophy, I confess I am entirely out of sympathy with the newest psychology of all, a product of medical minds, an alleged explanation of many psychoses, which claims to have discovered a means of mental cure—so-called Freudism. It is a part of the general sexual-mystic philosophy which is becoming more and more wide-spread and is itself a symptom of the madness of the times. It contains so little truth and so much error as to be useless. More than that, it is harmful. It claims that therapeutically psychanalysis is of great value. This psychanalysis really resolves itself into a searching and, to men holding every-day views as to morality, filthy examination into the past sexual life, repeated if necessary time and time again and lasting over a period of days or even months. It is largely a science of words and has developed a large vocabulary—"projections," "splitting of consciousness," "repressions," "conflicts," "dissociations" and many more. It is based on the wildest conjectures and offers the filthiest possible explanation of mental disturbances. Surely the sexual element in insanity is large enough without trying to make it more important. The supporters of Freudism are making great endeavors to force its acceptance and a few are even trying to compel state boards of examination to enforce its teaching in the schools. It has, of course, for that is always the case, attracted much more attention, and been taken much more seriously in America than in the land of its birth. To me it seems much wiser to teach students the commonly accepted clinical and pathologic facts about insanity and to ground them well in methods of examination, than to spend time lecturing on such matters. After students are graduated and when they know something about psychiatry, and something about humanity, they can judge for themselves the truth or falsity of such hypotheses.

Criticism is also made that teachers of psychiatry do not encourage undergraduates to do research work. The critics seem to think that any youth can be made into a real "research worker" if only he is properly taught. Now there is unfortunately no formula for the manufacture of men of the scientific type and to try to make an investigator out of a man not born such is often to spoil one who might have been a very good practitioner of medicine. The word "research" has come to have a very artificial meaning when used by certain men. To them it means only labor in the laboratory and usually it results in a dreary history, a long account of a necropsy, a tremendous list of references, preferably in foreign languages, ending with a rediscovery of an obvious and well-known fact. If the paper be written in slovenly English, and with every endeavor to make it as uninteresting as possible, it is the more to be praised. This is not research and it is not science. Science is only knowledge: it is not a particular brand of knowledge and there is much still to be learned at the bedside. The time of the average student is fully occupied doing his ordinary work and I do not think it well, therefore, for him to attempt research work. There are, however, always in every good school, and sometimes in worthless schools, a few undergraduates who are born investigators, men who see what they look at, who have clear mental vision, who recognize real relations between apparently unrelated things, who have an individualistic mental attitude uninfluenced by the prevalent dogmas of their day, who seize the gist of things and let the chaff go; these are the real youths of science and they ought to be encouraged from the start. Fortunately they, for the most part, need no encouragement but only opportunity. They are competent to cut their own path through this world.

Now as to the results: I think all the men leave the school with a real knowledge of the fact that insanity is a disease just as typhoid fever and tuberculosis are diseases and that it is controlled by the same laws. I think that the majority have a fairly clear idea of methods of examination. I think that almost all know that the delirium of fever and of drugs must not be mistaken for acute insanity and realize the responsibility they will assume in signing certificates. I am sure that few of them could, either from a case history or by examining the patient, make a correct diagnosis of the type of insanity present, unless possibly it was a text-book case of paresis or paranoia, melancholia or an exhaustion psychosis. I believe that more than a few are stimulated to such an interest in the subject as to continue to study it after graduation. I believe a few will make some real contributions to knowledge and possibly some one among them will make a fundamental discovery.

1918 Spruce Street.

THE TEACHING OF INSANITY

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I am firmly of the opinion that mental diseases should be taught just as are other diseases, namely, both didactically and clinically, and, as far as possible, the teaching should be brought into relation with internal medicine; for if there is one truth that our knowledge of the subject justifies, it is that the insane man is a sick man. The teaching should be of such a nature that when the student finally enters practice, he will be able to recognize the common and every-day forms in which mental disease manifests itself. It is the general practitioner, the family doctor, who sees the sick man first and the doctor should be sufficiently well informed to be able to recognize the mental diseases in their early stages. He should also know what to do under given conditions, when to commit and when not to commit a patient to

an asylum and how the patient should be treated in his own home or outside of an institution when this is practicable.

In my opinion theoretical considerations should enter but little into a course on mental diseases in a medical school. As far as possible, emphasis should be laid on symptoms, course, prognosis and treatment. In the main the latter consists of the application of supporting measures which promote nutrition and improve the general health. The student should also be taught under what conditions to employ medicines, the iodids, the mercurials, the glandular extracts and the various remedies and measures to produce quiet and sleep. That physiologic methods, rest, bathing and exercise should be emphasized, it is unnecessary to add.

There is at present a strange and unfortunate tendency to drop the practical study of insanity, that is, to abandon the study of the symptoms of these diseased states and to take refuge in psychologic speculation. A school has arisen in Vienna in which all of the phenomena of mental disease, as well as of the functional nervous disturbances, are attributed to sexual crises and traumas experienced in childhood; a new system of psychology has been evolved. Delusions are supposed to have their origin in the formation of special psychic complexes, that is, groups of associated ideas the result of sexual traumas. The memory of the sexual occurrences being often unpleasant, they are repressed and we then have a group of ideas which is dissociated from the rest of the personality of the patient. In other words, the personality is supposed to undergo cleavage or dissociation. The repressed complexes, however, overcome the resistance which the patient interposes, and, working themselves more or less to the surface, reach the field of consciousness, though often in a distorted form. During this process, conflicts occur within the personality and the symptoms are supposed to vary as one or another group of ideas fills the field of consciousness. It is further maintained by Freud and his followers that, if a repressed symptom-complex be given free vent, the patient is relieved and cured. Unfortunately, when we come to look at the reports of cases, we find that they are cases of ordinary and every-day hysteria and that the time required to effect a cure in such cases varies from six months to three years, most frequently three years. Assuredly, even admitting the theory of repressed sexual complexes, in itself improbable and essentially untrue, the prospect of curing an ordinary case of hysteria only after three years of daily or almost daily conversations, the conversations occupying about an hour at each session, is not very encouraging.

Unfortunately, and this is the point which is so distressing and alarming, men have not been found wanting who have carried this theory into the field of mental disease itself, that is, into the study of asylum cases. If there be one disease that justifies the opinion that it is a disease of morphologic deficiency, a disease of inadequacy, both mental and physical, that disease is dementia praecox; and yet physicians are found, among them Bleuler and Jung, who endeavor to apply the explanation furnished by the Freudian theory to dementia praecox. Bleuler, for instance, says that the cases of dementia praecox are at one time ruled by one complex and at another time by another complex. In stating this fact, he has merely pointed out a truth which is as old as the days of Kahlbaum and Hecker, who made their first studies in 1863 and 1874. The latter pointed out in the clearest possible way that the average case of hebephrenia passes first through a phase of depression and secondly through a subsequent phase of expansion. On the bases of these facts, themselves not new, Bleuler ventures to change the name of dementia praecox into "schizophrenia." "Schizophrenia" literally means "cleft-mind," "divided mind," but Bleuler forgets that all mental disease means more or less mental disintegration. Every case of hysteria that has a paralysis of the arm has the centers of that arm dissociated from the other centers of the cortex, so the arm no longer forms a part of the personality. In every case of mental disease in which the patient hears himself addressed by his hallucinations, there is a dissociation of the mental make-up. If we are therefore to employ the term "schizophrenia," it must be applied to all the forms of mental disease in which dissociation of any kind is present. Further physicians have learned—and there is no teacher so good as that of experience — that the only possible hope in dementia praecox lies in the upbuilding of the patient, the placing of the patient, by means of full feeding and simple physiologic measures, in as good a physical condition as possible. That of course every case requires retraining, a rational psychotherapeutic procedure, in addition to the employment of purely medical measures, every practical physician knows. We need no absurd theories of psychanalysis to prove this fact to us and yet Bleuler in his most recent contribution on the subject in the "Handbuch der Psychiatrie," states that psychanalysis offers the only hope for the cure of dementia praecox. I leave this subject to the calm judgment of the every-day practical physician. Such an important clinical fact that almost all dementia praecox patients possess a fatal vulnerability to tuberculosis, that they die in large numbers of some form of abdominal tuberculosis, is swept aside or utterly ignored by the disciples of Freud, and yet this single fact of the susceptibility of the dementia praecox patient to tuberculosis must have a deep and profound meaning and proves more than any theoretical consideration possibly could prove that the study of mental disease must be approached from the standpoint of internal medicine.

The grave danger that confronts the medical student of to-day is that it is actually proposed to introduce in the place of rational instruction in mental disease, this so-called "newer psychology." It may be granted that now and then the latter may offer a possible explanation of a symptom but the fact remains that it cannot and does not cure. The absurdity existed a few years ago, and doubtless is perpetuated in some of the asylums to-day, of having a young lady psychologist, generally a girl hardly out of her teens, to work up the psychology of the patients. This young person was always one without a particle of medical training. Could anything be more monstrous or preposterous? And now it is actually proposed to force into the already overcrowded curriculum of the medical student, the study of a subject alike barren and theoretical, to take the place of the teaching of internal medicine, of which insanity is but a part.

1719 Walnut Street.

Anaphylaxis and Infectious Diseases.—We are compelled to change our ideas concerning the causation of the lesions of the infectious diseases. Formerly we believed the structural changes to be due wholly to the living, growing, feeding microorganisms. For instance, we were sure that the intestinal ulcerations of typhoid fever are caused by the living bacilli. Now we know that these lesions follow the intravenous injection of dead proteins.—Victor C. Vaughan in *American Journal Medical Sciences.*

SAVING THE BACKWARD SCHOOL CHILD

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The backward school child, so misunderstood and non-understood, so mistreated and non-treated, so unconsciously and unintentionally encouraged and compelled to grow continually more backward is a comparatively new human product. As a rule, the children of this class have lingered in the lower grades without making the customary advancement. Moreover, they often drop to still lower grades when the causes of their backwardness are not removed, and many show traits of abasement and disgrace which are due not alone to physical or anatomic causes, but are, as a rule, of the nature of deteriorations or non-developments of functional, physical, moral or intellectual characteristics.

These discriminations are fundamental and to be borne in mind if we are to set these children right in school and, more than that, in life. Because, in the young especially, we have still to learn that functional disease precedes and causes structural abnormalism, aberrant physiology degenerates into pathologic anatomy, and curable mental twists, perversities and malworkings of functionally abnormalized minds harden into insanity and criminality.

Since 1845 a constant series of books and reports of reputable physicians has been appearing, all pointing out that malfunction of the eyes, the most valuable of our sense organs, is a great source of disease, not only of the eyes themselves but of the general system—and especially of the nervous system. Of late, it has been clearly seen that civilization multiplies enormously the causes of eye-strain, and that as a result nervous and mental diseases are rapidly increasing with a frightful growth in the general morbidity rates. Suicide of children and also of adults in all countries is in exact proportion to the number of hours of study per week demanded of school children.

According to a bulletin of 1912, the U. S. Bureau of Education says that 25 per cent., or about five million, of the school children of our country have defective vision, and that about 75 per cent., or about fifteen million, of the school children in this country need attention to-day for physical defects which are prejudicial to health and which are partially or completely remediable.

The school child, degraded, functionally diseased, criminal in the making, is allowed to go on to utter failure mentally and physically, thus finally burdening the community with his permanent invalidism, criminality, expensive support in asylums, etc. What has been wanted all the time is a workmanlike testing the matter out on this, that, and another school child, and, so far as pertains to the eyes, actual relief of eye-strain and following up of results. This, in a small but illuminating way, has at last been done by an oculist of New York City, Dr. William Martin Richards, who was personally commissioned by the school authorities, himself carrying out the refraction work, supplying the spectacles, etc. The patients were the children who were below grade in two public schools, Nos. 4 and 44, Bronx, N. Y.

The clinical experiment was on thirty-eight pupils; thirty-two hyperopic, three myopic and three with mixed defects of the eyes. The old contentions, therefore, are so far illustrated, if not proved; namely, that hyperopia, hyperopic astigmatism and anisometropia are the causes of eye-strain and of myopia.

In twenty-six children the error of refraction was large, i. e., over 0.50 D., and in twelve it was small or less than 0.50 D. Thus the ancient error continuing to-day, but often disproved, that small errors of refraction are negligible, is corrected, the small error being given as one of the causes of non-progress in one-third of the children.

Of all examined only two were wearing glasses, and these two pairs of spectacles were outrageously incorrect, one child having with the old glasses about 20/75 in one eye of normal visual acuteness, and in the other eye less than 20/100. Despite the injuries caused by these glasses the first child was given by correct glasses nearly perfect vision in one eye and in the other about 20/40. The second child's old glasses made her vision (about 5/100) worse than no glasses, and the new ones brought 20/50+.

Of the thirty-eight children only three had approximately normal vision, which does not signify that even these three did not need spectacles. When a cycloplegic was used and the real error of refraction was revealed, it was discovered that they did need them.

For the thirty-five remaining patients, these are the findings, the figures referring to the natural acuteness of vision with both eyes: three had 20/25 or better; seven had about 20/30; nine had 20/40; six had 20/50; four had 20/75; two had 20/100; three had less than 20/100, and one was practically blind. Thus two-thirds of these children, whose occupation was study, had only one-half vision or worse with which to do their work. Not one had been told that he needed glasses! Compare these figures with the visual acuteness brought by correct glasses: in seven it was most perfect, i. e., 20/16; in ten it was 20/20; in seven, 20/25; in four, 20/30; in five, 20/40; in four, 20/50; the child who was practically blind, that is, unable to name any test object whatever, now sees perfectly, apparently. In most of the twenty children with less than normal acuteness of vision, the results of late use of glasses demonstrated that the deterioration of visual acuteness could have been prevented by correct lenses earlier in life. One exception was the case of a child operated on for congenital cataract. Another was that of a child who had a high amblyopia of 20/100. Her small refraction error proved that she made a mistake in her early answers, because after getting low-power lenses she had an acuteness of 20/16.

One of the most important and noteworthy results of these experiments is not mentioned by Dr. Richards; the cures were made with no reference to or use of myologic or heterophoric theories. One may trust that in future work of the kind, these effects of eye-strain may not again be falsely considered its causes.

The reports from the point of view of the principals, assistants, etc. of the school may be epitomized from their own words as follows:[1]

> Selection was made from among (1) the worst cases of retarded children falling behind in their present grade; (2) those who had a history of school deficiencies; (3) ungraded children. Use was made of records of tests and records of promotions, to determine problems. Consultations were held by the grade teacher, assistant principal and principal before decision was rendered. In every case the consent of the parent was obtained.
>
> The pupils were in school from four to twelve weeks after the final fitting. A ten weeks' summer vacation interrupted our observations.

1. The data here brought together are from Dr. Richards' own notes and from the official reports of the teachers of the public schools mentioned.

Number of children covered by this report:

Children from regular classes	29
Children from ungraded classes	11
	40
In Public School 44, Bronx at present	8
In Public School 4, Bronx at present	23
Discharged (transferred from Public School 44)	2
Transferred to other schools from Public School 4	5
Discharged from Public School 4 (over age)	2
Total	40

SUMMARY OF THE RATINGS

The first record was taken in January, 1912, the second was taken in June, 1912. In order to gain uniformity of opinion on the ratings whenever possible, judgment was given in the second record by the same teacher who placed the original standard. This report is unable to deal with four pupils of regular classes and one pupil of an ungraded class, because of their transfer very soon after wearing glasses.

Among twenty-five deficient children from regular classes, nineteen were promoted.

Among nine children from the ungraded classes one was promoted to a regular class.

An examination of the charts will show marked improvement in reading, arithmetic, spelling and penmanship. The very marked improvement in temper, irritability and power of concentration is a significant revelation.

In Public School 4 it would appear that considerably more benefit was derived by the older children than by the younger ones. This may have been due to the fact that our younger pupils received their glasses later than the older ones, and hence there was not so long a period for improvement to show itself.

In the regular classes the number of those receiving specially pronounced benefit in the grammar grades is eight; of those in the primary grades four.

In Public School 44 the children under observation were all in the primary grades, all of whom received promotion. (A detailed study of special cases is enclosed, covering pupils of regular and ungraded classes.)

OBSERVATION OF THE NINE UNGRADED CHILDREN

Two boys, ages 17 and 16, had reached the limit of mental, social, moral and individual growth at about the age of 12. Hence from these nothing could be expected and the teacher reports little or no progress generally.

The remaining seven are of that type which is exceedingly slow to show any improvement; therefore this report, showing growth is very remarkable.

INTELLECTUAL IMPROVEMENT

Arithmetic	2	Oral English	2
Spelling	4	Singing	1
Reading	4		

HABITS: ALL HAVE IMPROVED

Gymnasium	2	Power of sustained mental work. (In some cases the increase of power here is very great.)	7
Cleanliness	3		
Attention	3		
Lateness	1		
Control of facial muscles	1	Power of concentration	2

CHARACTER: ALL HAVE IMPROVED

Self-respect	1	Gain in self-confidence	1
Development in responsibility	1	Temper	1
Development in social instinct	1	Irritability	2

The extraordinary results, markedly pronounced in so many cases, justify the hope that many similar experiments will be made. The benefit derived by these children has been so great and of such a nature as not to be definitely measurable.

The following cases alone (aside from what has been done for the other pupils) has repaid many times the money, time and patience which were spent on this work.

In Public School 4, one boy's life was completely changed. His actions became more controlled and his entire view was altered. From a decided case for discipline he became a boy easily handled. He developed such a sense of responsibility that he was allowed to accept the nomination as head monitor. He was elected by his schoolmates and was perfectly reliable during his entire office. He showed an amount of school spirit unbelievable, if judged by his previous life.

Another striking case is that of a boy who was troubled with the worst kind of hallucinations. He made sudden outcries and told strange and horrible stories of what he thought had actually happened. He was exceedingly difficult to get on with. This boy has been made very much happier. This is evident by his facial expression, which could be easily characterized as sweet. To understand fully what this means, it is almost necessary to see this boy. He has been promoted.

A most remarkable case is that of a boy who had a temper that was maniacal. It was absolutely impossible to do anything with him, once he was aroused. He became tense, screamed, bit, kicked; and these attacks sometimes lasted an hour. These awful outbursts occurred every two or three days. He was a source of general annoyance to his classmates and in his lessons did practically nothing. At present the boy is gentlemanly, popular with his schoolmates, respectful to his teachers and shows no indication of temper. He is doing 5A work and his teacher's comment in speaking of him was: "Excellent in every respect."

In Public School 44 one child was as much handicapped as if he were actually blind. He was most unhappy and his facial expression fully indicated his mental state. Now his expression is actually sweet, and whereas previously he had been a nuisance and a problem, he is now a pleasure. He was given a new life.

Another remarkable case demanding special mention is that of a little girl in Public School 44 who, it seemed, would develop into a delinquent of the worst type. She was a truant from school, absolutely indifferent to her work, morally bad, associated with objectionable boys and stayed out late at night. The transformation is wonderful. She comes to school regularly, works hard, appreciates what her teachers have been trying to do for her; and we now feel that we need have no further fear concerning her moral life. Her character is growing to be such that it will be impossible for her to be anything but a respectable member of society. This case alone was worth any amount of energy spent.

One boy admitted to Public School 4 was found to be practically blind. The eyes had no irises and the boy had never seen anything but very vague forms of large masses and then only those placed not more than 2 feet from him. He was laboring under tremendous nervous strain and was suffering greatly. His restlessness was so excessive that he could not be kept in an ordinary classroom and he was placed in the open-air class. The school doctor examined him and said nothing could be done for the boy. The school visitor called at the home and found conditions to be wretched. A charitable society had been caring for the family, and their agents had completely overlooked the condition of this child. The boy was admitted to the school for the blind, but the mother refused to allow him to attend there, because it was so great a distance from his home. She came back to the general public school with him. Dr. Richards' attention was called to this case. The result has been more than wonderful. This boy has been given eyes! He actually sees as does a normal person. When first the glasses were placed on him, and a vase containing flowers met his direct line of vision, the child became highly hysterical. He had never seen anything of that sort before and for him life had just begun. At present the boy is under the supervision of the inspector of the blind.

One girl of 13 had no idea of truth and honesty. She stole and lied. She gave up all such habits and has developed a sense of honor. She has been promoted.

Another boy of 12 was a hard disciplinary problem; he played truant last term, gained no promotion and showed no improvement. This term there has been no complaint about conduct and no truancy. He is in 5A grade and working satisfactorily.

H. T., aged 12, should have been three classes higher. He was inattentive and indifferent and his conduct was unsatisfactory. His conduct is now improved, he has gained promotion; the change is splendid.

R. A., aged 11, showed steady mental and physical improvement between January and June. Her appearance is greatly changed for the better. The mother feels more interest in her child.

Two brothers showed no improvement in a long list of bad symptoms. At last it was found that they had accidentally changed glasses with each other!

L. S. lost his spectacles immediately after getting them and his parents refused to replace them or allow anyone else to do so. Eyes and general health are in bad condition and growing worse.

M. D., a cripple needing operation, has now been promoted, cares for himself better and has improved self-respect; his carriage, posture, etc., are excellent.

H. S. was almost blind; pains in eyes have now disappeared, but he is far from seeing well. In other respects he is wonderfully better; his former nervousness and irritability have vanished and he is eagerly making up lost time.

J. L. had lost two years of school time and should have been four classes higher. He has been promoted.

L. O.'s headaches have almost disappeared and her general health and work have improved.

Several cases of non-improvement seemed probably due wholly or in part to great amblyopia caused by previous years of uncorrected ametropia, and this, for the short time reported, persisted after correct glasses were worn. Others were as plainly complicated by intercurrent diseases. Exceptionally wretched home-conditions of a number of children were perhaps responsible for the continuance of symptoms.

Dr. Richards estimates that there are about 78,000 children with defective vision in the public schools of New York and that there is no valid excuse for the failure to prevent this evil in 80 per cent. of all such patients. They are not prevented now, he thinks, because the principles and practice of refraction are not adequately and correctly taught in medical colleges. He believes that in New York there is a divided responsibility in the government of the schools; that a cycloplegic is not used to diagnose the errors of refraction in the 84 per cent. of hyperopic defectives, and that small errors are ignored although they have great influence in determining effort, proficiency and conduct. The result is that the accurate measure of the refractive errors of the school children of the city is impossible, and, moreover, if it were done it would be impossible to get the requisite spectacles made, adjusted and paid for. Lastly, diagnosis and treatment of defects and diseases of other organs than the eyes is not, by any means, at present feasible.

401 Oriental Avenue.

THE TREATMENT OF GONORRHEAL AND OTHER INFECTIONS WITH DIGESTIVE BACTERIAL EXTRACTS

PRELIMINARY REPORT

J. O. HIRSCHFELDER, M.D.

SAN FRANCISCO

In THE JOURNAL of Oct. 12, 1912, the production of active and passive immunity to the pneumococcus in the rabbit with an extract of the living microorganisms by an alkaline solution of pancreatin was described,[1] and ten cases of pneumonia were reported in which recovery followed its administration. Since that time, further animal experiments have confirmed these results and recovery has occurred in seven more cases, none of the patients treated having died. In the greater number of cases the crisis has occurred within twenty-four hours after the first dose of the extract.

With the gonococcus, experiments naturally could not be performed on the lower animals, but the clinical material was more abundant. The results thus far obtained are sufficient, however, to warrant a provisional report. The extract was prepared in the same manner as the pneumococcic. A suspension of the gonococcus was heated to 38 C. (100.4 F.) and to it an equal quantity of a 0.2 per cent. solution of pancreatin (Cudahy) in 2 per cent. sodium bicarbonate at 38 C. was added, kept at that temperature for fifteen minutes and then acidulated with hydrochloric acid to stop the action of the ferment. The mixture was then filtered through a Pasteur filter and was ready to use.

The dose usually given was 5 c.c. administered intramuscularly. Within a few hours in most, but not in all cases, reaction, in the form of chill with elevation of temperature of a few degrees, of short duration, and general malaise ensued. It was often observed that succeeding doses were followed by less reaction and sometimes by none at all, as if immunity had developed. As much as 50 c.c. have been given without especially unpleasant symptoms.

In gonorrhea of the male, both acute and chronic, in a few instances results followed which might be looked on as favorable; but in the majority of cases the effects were not such that a skeptical observer would have been compelled to acknowledge the value of the remedy.

In the female the evidence, although not conclusive, was somewhat stronger. Twenty-four girls confined in St. Catherine's House, a penal institute, were given twenty-two injections each, administered biweekly, and in eleven of them the gonococci disappeared from the vaginal secretions.

On the other hand, in the municipal clinic the results were rather striking, especially in contrast to the preceding observations.

Of twenty prostitutes treated in the municipal clinic with the gonococcic extract combined with the usual measures, eighteen rapidly recovered, and on their return, as wards of the municipality, for examination twice a week, the continued absence of gonococci has been recorded. Some of the patients have thus been under observation since March, 1912. A patient who did not recover had a urethral gonorrhea. Her general health was poor and the cervix had an old retained suture. On September 19 she was put on the usual treatment until October 18, when 5 c.c. gonococcic extract were injected, the injection being repeated on the 25th. The following day it was noted that the cervix and urethra looked fine, with almost no discharge; but on November 14 the smear was positive. On November 15, 5 c.c. were injected and since then the patient has not returned, having probably left town.

The second patient was three months pregnant when treatment was begun. From May 2 until August 6 she received ten injections, when on three examinations extending to August 19, no gonococci were found; but later they were detected.

Of the others, ten were permanently cured by one injection, six by two, and two by three.

In all of these cases, male and female, local treatment was combined with the administration of the extract, so that the test was not a perfectly fair one; one must always be in doubt as to how much of the effect could be ascribed to the local and how much to the constitu-

1. Hirschfelder, J. O.: The Production of Active and Passive Immunity to the Pneumococcus with a Soluble Vaccine, THE JOURNAL A. M. A., Oct. 12, 1912, p. 1373.

tional treatment. A far larger experience will be necessary to determine this point.

One patient, however, was treated by gonococcic extract alone at the City and County Hospital, proving the efficacy of the remedy as far as one case can do so. With this patient absolutely no other remedy was used, not even cleansing injections of water having been permitted during the whole time of her treatment. The patient, a girl of 17, entered the hospital with a cervical and vaginal gonorrhea of six months' duration, the discharges from both sources contained gonococci. Injections of the gonococcic extract were followed by rapid improvement in the subjective and objective symptoms, and after five injections had been given during twenty-one days, the gonococci had disappeared. Three further injections were made before the patient was dismissed, and on two examinations made before her dismissal no gonococci were demonstrable. She was treated later at the clinic for vaginitis and cervicitis, but during two months on three examinations, no gonococci were found.

It seems reasonable to assume that when the gonococci are present in the urethra, any antibody which might form in the blood would have difficulty in reaching them, and we would be prepared for a failure of the remedy under such conditions. The marked effects that were apparently produced in the resistant organs of the prostitutes are, however, rather striking.

In systemic gonorrheal infections the results obtained have been far more favorable.

We have treated seven patients with epididymitis under the care of several different observers, and all but two have rapidly recovered.

The first relatively unfavorable case occurred in a patient in the care of Professor Rigdon. This patient entered the hospital with gonococci in the discharge, the right epididymis and testicle about twice the normal size, and a large sensitive nodule in the tail. After three injections marked improvement occurred, but on account of severe pain from the injections (the only case in which much disturbance had been noted) the patient left the hospital and reported at the clinic. Continuation of the improvement was noted. Nine days later it was recorded that the epididymis was almost normal. In nine days from that date, however, it again began to swell and the patient was sent to the hospital, where an epididymotomy and vasotomy were performed.

The second relatively unfavorable case was likewise in a patient in the care of Professor Rigdon. This patient presented himself with his third attack of gonorrhea at the dispensary, Nov. 18, 1912. At that time the testes were normal. He received the routine treatment and was also given 5 c.c. gonococcic extract, followed by reaction. On the 25th it was noted that the discharge was much lessened, but two days later epididymitis had developed, for which the patient was sent to the hospital on the 30th. There he received the usual treatment and in addition was given an injection of 5 c.c. gonococcic extract; this was repeated December 2; both injections were followed by reaction. December 4 it was noted that the testicle was decidedly less swollen. The patient received 5 c.c. December 4 and 5 with the usual reaction, on the 7th with slight and on the 8th with none. The epididymis remained the same size, and on the 9th he was given 8 c.c. with slight, on the 10th, 16 c.c., and on the 11th, 18 c.c. with decided reaction. On the 12th the history notes that the local condition was the same as on the 8th, except that the caudal extremity was soft. The patient was given 20 c.c. followed by rise of temperature to 102. He left the hospital and presented himself at the dispensary, where further slow improvement was observed.

In all of the other patients treated, the beneficial effects were rapidly produced. The following three were treated by Professor Rigdon:

CASE 1.—The patient, who had acute gonorrhea with epididymitis was treated May 27, with emulsion of buchu and oil of sandalwood,[2] and Caspar ointment[3] to scrotum, and was given 10 c.c. gonococcic extract. On June 3 it was noted that there was marked improvement in every way; 10 c.c. were given. On the 7th the epididymis was much reduced in size and on the 15th it is recorded as normal.

CASE 2.—The patient came to the dispensary with acute gonorrhea for which he received the usual treatment. On October 15 acute gonorrheal epididymitis involving the left testicle had developed. He was put to bed, compresses of saturated solution of magnesium sulphate were applied, and 5 c.c. gonococcic extract were injected. On the 22d the testes were normal.

CASE 3.—The patient presented himself, September 30, with gonorrhea which received the usual treatment. November 15, the right epididymis was inflamed. The patient was put on the routine treatment with some improvement, but on December 10 a recrudescence occurred, the epididymis being enlarged and tender, the inflammation involving the body and tail. The following day he entered the hospital, where local applications of magnesium sulphate were made, and 5 c.c. gonococcic extract injected without reaction. The next day 10 c.c. were given with barely a reaction. On the third day it was noted that the caput epididymidis was soft, the caudal extremity less indurated; there was no pain and no urethral discharge. December 14, the epididymis was found practically normal, with very slight thickening of the head, but no tenderness on pressure and no urethral discharge after seven hours, the urine showing no shreds. The patient was discharged from the hospital and a week later presented himself at the clinic as perfectly well.

The two following cases were treated by Dr. Krotoszyner:

CASE 4.—The patient, J. C., had had chronic gonorrhea for two years for which he had lately been treated with injections and sounds. A few days before entering the hospital, following the introduction of a sound, a swelling of the right testicle was observed. November 13, the right epididymis was found swollen to the size of an orange, very tender, no urethral discharge, prostate normal, on palpation containing a soft spot in the center. The prostatic juice contains pus in abundance and a few suspicious diplococci. The temperature ranges between 100 and 101.4. November 15, he was given 5 c.c. gonococcic extract without reaction and on the following day, 10 c.c. with marked reaction. On the 17th the epididymis was less swollen and less tender, the patient feeling generally improved. He received 10 c.c., and the next day further reduction in size and tenderness was noted. Ten c.c. were administered November 18, 19 and 22, when it was recorded that the epididymis was almost normal. On the 23d the local condition was found much improved, the prostatic juice contained a few pus cells but no gonococci, and 10 c.c. were injected. November 27 patient was discharged with epididymis normal in size and consistency.

2. The composition of emulsion of buchu and sandalwood oil is as follows:

Oil of sandalwood	
Sodium bicarbonate, of each	2 parts
Powdered acacia	
Powdered tragacanth, of each	1 part
Fluidextract of buchu	4 parts
Alcohol	2 parts
Water	50 parts

3. The composition of Caspar oil is as follows:

Ichthyol	2 parts
Guaiacol	4 parts
Mercurial ointment, 50 per cent.	8 parts
Lanolin	
Petrolatum, of each	5 parts

CASE 5.—The patient, W. P. S., contracted gonorrhea four weeks before entering. The right testicle began to swell five days before, and the left testicle one day before. On examination, December 18, the right epididymis was found to be the size of a small orange, the left that of a blue plum, both being tender. The patient was given 10 c.c. gonococcic extract, followed by reaction. The next day the left testicle was slightly smaller, the right unchanged. He received 20 c.c. and on the 20th there was marked decrease in size on the right, some on the left side; 30 c.c. were given, and on the 21st the left was still smaller and less indurated, as was also the right; 40 c.c. were given. On the 23d the left testicle was almost normal in size, but still indurated. The right was about the size of a chestnut, both being markedly less painful. The left cord was normal, the right still indurated. Creamy pus containing gonococci was found at the meatus; 50 c.c. were injected, and continued improvement occurred.

Seven patients with gonorrheal rheumatism have received treatment with the extract; all have recovered and as far as is known have remained well. In every instance improvement has set in quite rapidly, and in most of them has been uninterrupted. With a few during the course of the treatment there have been slight exacerbations of the inflammation of very short duration.

In a prostitute at the municipal clinic, gonorrhea was treated in the usual manner from May 10, 1912, to May 21, when gonorrheal rheumatism developed in the right wrist. The patient was given an injection of 5 c.c. of the gonorrheal extract, and by May 31, three negative smears had been made and all pain had disappeared. She has presented herself regularly for examination and up to the present has remained normal.

CASE 6.—W. M. came to the City and County Hospital in my care, March 23, 1912, with gonorrheal rheumatism of the left hip-joint that had lasted since December, 1911, and for which he had been unsuccessfully treated with various methods including injections of ordinary vaccines. Gonococci were found in the urethral discharge and the patient was unable to walk on account of the severe pain. On passive movement of the left lower extremity pain was produced in the hip. March 25 he received an injection of 10 c.c. gonococcic extract; on the following day he stated that he felt a little better. On the 30th he was given 18 c.c. and the following day he had practically no pain, and was able to walk with scarcely any limp. No discharge could be expressed from the urethra. April 4, he was given 20 c.c. and on the 8th, 30 c.c. On the 10th he ran in the ward without the slightest limp. April 15, he received a final dose of 30 c.c. No gonococci could be found in three examinations which were made before his dismissal as cured, April 21, nor were they discovered at an examination six days later.

CASE 7.—H. H., in the care of Dr. Krotoszyner, was attacked with polyarthritis, involving first the right hip, then the left, then the ankles and finally the right wrist ten days after an acute gonorrhea. When examined, Nov. 10, 1912, swelling of both ankles and the right wrist was found together with a profuse spontaneous discharge at the meatus containing gonococci. Both portions of the urine were cloudy. The prostate was somewhat enlarged and tender to touch, showing two distinctly soft spots in each lobe. The prostatic juice showed many pus cells, but no gonococci and very little lecithin. There was general prostration, the patient was very listless and could not sleep on account of pain in the affected joints. The temperature ranged between 99 and 101, pulse between 88 and 100, respiration between 20 and 26. November 19, he was given 5 c.c. gonococcic extract; this was followed by chill and rise of temperature to 102.8. The following day the pains in the affected joints were somewhat less severe, but otherwise the findings were the same. November 20, he received 10 c.c. followed by chill and rise of temperature to 102.6. November 24, it was noted that the affected joints were markedly less painful; not much pain could be elicited on passive movement, and the local condition was also improved. On urination the first glass was cloudy, the second clear, containing many shreds. Nov. 25, 10 c.c. were given followed by chill and rise of temperature to 103.2. November 26, swelling and tenderness in the affected joints were markedly improved; the patient moved both ankle-joints spontaneously and asked permission to get up. November 28, both ankle-joints were somewhat thickened, otherwise normal. Passive movements painless. Patient walked without pain. Right wrist was normal. Both portions of the urine were clear, containing a few shreds; prostatic juice contained a few pus cells. There was no more spontaneous discharge at the meatus, and no gonococci were found. Patient was treated with prostatic massage, steel sounds and instillations of silver nitrate three times weekly. December 2 and 4, 20 c.c. of gonococcic extract were given, not followed by chill, the temperature not rising above 100.4. December 7, patient was given 30 c.c. and the temperature rose only to 100.2. On discharge from the hospital at his own request, December 16, it was noted that the joints were normal and that the patient felt entirely well. No gonococci were found. Both portions of the urine were clear, containing a few shreds; the prostate was normal, the juice showing a few pus cells.

CASE 8.—A. F., in the care of Dr. Krotoszyner, had had gonorrhea six weeks before and still showed spontaneous discharge containing gonococci. Three weeks before he developed arthritis of left knee, ankle and wrist. Nov. 27, 1912, he showed the left knee-joint much swollen and tender and also the ankle and wrist. The temperature was between 98.6 and 100.4. He was given 10 c.c. gonococcic extract, followed by reaction. The next day the affected joints were less tender, and 10 c.c. were given. On the 29th the joints were less swollen and tender; passive movements were possible to a limited extent, but were very painful. November 30, 10 c.c. were given and the following morning the patient felt much better and moved his joints spontaneously. By massage of the prostate, turbid juice was evacuated and prostatic massage every other day with passage of steel sounds and mild silver irrigations were ordered. December 1, he received 15 c.c. gonococcic extract not followed by reaction and on the next day he was able to walk down the stairs to receive his local treatment. December 3, the joints were easily movable and painless on passive movement; urethral discharge was disappearing; 15 c.c. were injected. December 5, joints were freely movable, and not tender to touch or on movement. Both portions of the urine were clear, containing a few shreds; prostatic juice showed less pus, no gonococci, and a few lecithin bodies. December 11, 30 c.c. gonococcic extract were not followed by reaction. December 12, patient felt well, the affected joints were slightly puffed, but otherwise normal, and he was discharged cured.

In three cases of typhoid an extract prepared from the typhoid bacilli was injected with apparently good results. In all of them the intensity of the Widal reaction rapidly increased; in one from 1 in 100 to 1 in 180, in another from 1 in 250 to 1 in 400, and in the third from 1 in 50 to 1 in 200.

In two cases of articular rheumatism injections were made with an extract prepared from the culture of an endocarditis streptococcus, and in both improvement followed.

Investigations are being made with extracts of the streptococcus, the colon bacillus, the *Bacillus pyocyaneus*, *B. tuberculosis*, and other microorganisms that present themselves in the various clinical departments of the hospital.

It is to be hoped that the principle of the production of antibodies by the employment of digestive extracts of the various microorganisms will prove to be of general application.

1392 Geary Street.

A CASE OF CONGENITAL FAMILIAL DEXTROCARDIA

WITH ELECTROCARDIOGRAPHIC CURVES

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Reports of cases of congenital dextrocardia as a single anomaly or as part of a situs inversus viscerum have appeared in the literature from time to time. The advances in roentgenography and orthodiascopy and the

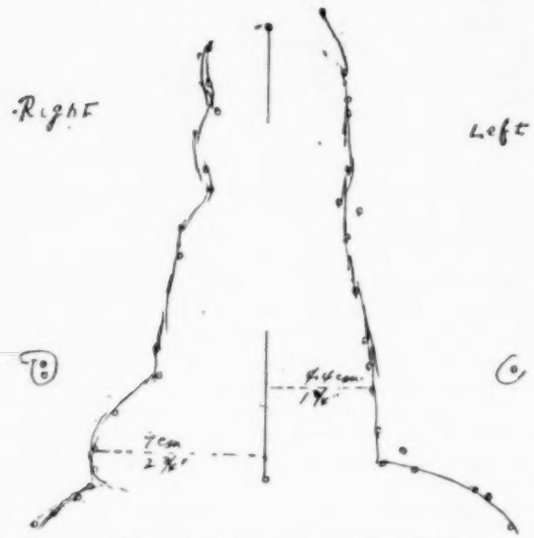

Fig. 1.—Orthodiascopic tracing of patient with dextrocardia.

study of electrocardiography have given added interest to this rare group of congenital malpositions. The two cases here reported occurred in a brother and sister. I have not been able to find a report of more than one case of this anomaly in any one family. The sister died four years ago; the brother is alive.

The following is a summary of the cardiac history of the family:

The father, aged 60, is well; his heart is in normal position. The mother died of "chronic nephritis and uremia; the heart was hypertrophied and dilated and was on the left side."[1] Of the children, the oldest, a female, died of tuberculosis four years ago. The hospital report reads, "heart situated on the right side, liver on the left."[2] Of the three living children, one a boy 18 years old, has a normal heart; the other, A.H., has dextrocardia. The youngest, a girl aged 17, gives a history of chorea and articular rheumatism since her sixth year. Her heart is very much enlarged to the right and left. She has had several attacks of decompensation. She suffers from mitral regurgitation and there is some evidence of a pulmonary lesion. Her electrocardiogram shows right ventricular hypertrophy.

A.H., aged 26, had noticed since childhood that his heart beat on the right side. As a child he had pertussis followed by left-sided empyema for which he was operated on. He has been coughing since his attack of pertussis. His occupation entails hard work and constant climbing of stairs. Examination of the lungs shows signs of chronic bronchitis. The apex of the heart is situated on the right side in the fifth intercostal space. Taking into account its transposed position, the cardiac area is normal to percussion. The outline is best seen in the orthodiascopic tracing (Fig. 1). The patient suffers from no circulatory disturbances; his occasional dyspnea is caused by bronchitis. The liver is situated on the left side; the spleen on the right.

A brief description of the derivation and interpretation of electrocardiographic curves will elucidate the diagrams. Every muscle contraction produces a minute amount of electromotive force sufficient to cause deviation in a sensitive galvanometer. In the case of the contracting heart the action current is drawn off by means of non-polarizable electrodes placed on both forearms and on the left leg. Currents passing in definite directions between these electrodes constitute what are known as leads; that from right arm to left arm constitutes Lead 1, from right arm to left leg, Lead 2, from left arm to left leg, Lead 3. The electrodes are connected with wires in circuit with a galvanometric string, and thus the electricity produced by the cardiac muscular contraction passes through a silvered quartz or platinum string of almost cobweb thinness. The string lies in the field of a powerful electromagnet through the poles of which a microscope is placed. In this manner the microscopic deviations of the galvanometric string are magnified, usually about 600 diameters, and the magnified deviations are projected and photographed on a moving photographic film. The picture so obtained constitutes the electrocardiogram. For every normal beat the electrocardiogram consists of certain summits and depressions, arbitrarily called P, Q, R, S, T; these sometimes vary to a considerable extent in the different leads. The main summits are P, R and T, the P wave corresponding to the auricular and the R and T to the ventricular beat.

The electrocardiographic curves in this case (Fig. 2) correspond to those of congenital dextrocardia. A few cases have already been published (Nicolai,[3] Hoke,[4] Owen,[5] Lewis[6]). Comparison with the normal electrocardiogram from Lead 1 (Fig. 5) shows that in dextrocardia the positions of the summits P, R, T is exactly the inverse of the normal; they are, so to speak, upside down. This reversal of the peaks takes place in the first lead alone because it is the "symmetric" lead.[7] Such exact reversal of P, R, T is found only in congenital cardiac transposition, therefore this method may be used to differentiate between the latter and those displacements due to pleuritic effusions, adhesions, tumors, etc. Leads

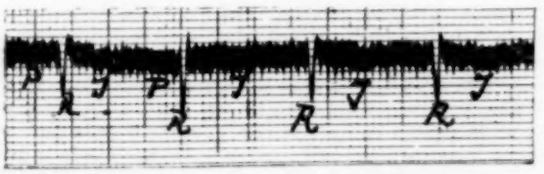

Fig. 2.—Electrocardiogram in congenital dextrocardia; Lead 1.

Fig. 3.—Electrocardiogram in congenital dextrocardia; Lead 2.

1. Report from Dr. C. Irving Fisher, superintendent, Presbyterian Hospital, New York City.
2. Report from Dr. William Mabon, superintendent, Manhattan State Hospital.

3. Nicolai: Berliner klin. Wchnschr., 1911, xlviii, 51.
4. Hoke: München. med. Wchnschr., 1911, lviii, 802.
5. Owen: Heart, iii, No. 1, p. 113.
6. Lewis: Brit. Med. Jour., June 22, 1912.
7. Lewis: Brit. Med. Jour., June 22, 1912, p. 1423.

2 and 3 (Figs. 3 and 4) also show changes typical of dextrocardia; that is, all the summits are higher in the third lead than in the second. The P summits in the first lead in this case are very small; this sometimes happens in normal electrocardiograms in this lead.

SUMMARY

Two cases of dextrocardia with situs inversus viscerum in one family are herewith reported. Another child in the same family has very marked cardiac enlargement following endocarditis.

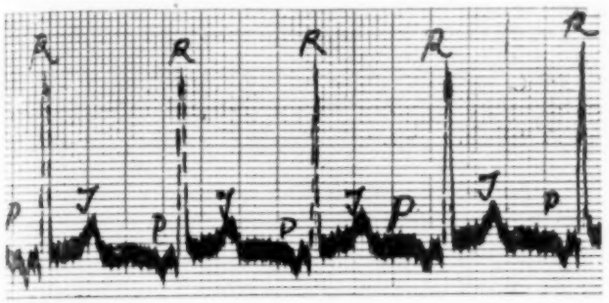

Fig. 4.—Electrocardiogram in congenital dextrocardia; Lead 3.

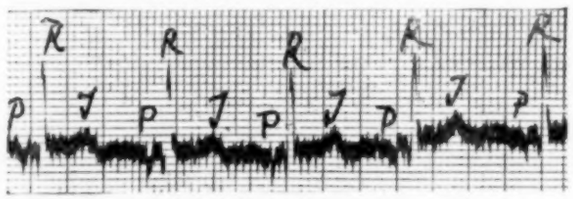

Fig. 5.—Normal electrocardiogram; Lead 1.

I am indebted to Dr. H. B. Williams of the department of physiology of the Columbia University for his kindness in taking the electrocardiograms in this case.

1275 Madison Avenue.

Pulmonary Tuberculosis in the Aged.—Breton and Bruyant (*Echo Médical du Nord*, Sept. 29, 1912) draw some interesting conclusions from their examination of 400 women in an old people's home during the last six years. Active pulmonary tuberculosis was noted during life in 12 per cent. of the patients, and in 6 per cent. in the few necropsies permitted. In the less active cases, a history of some manifestations of tuberculosis in youth was the rule. These had subsided in time and seemed to have conferred an immunity which lasted for half a century or more, and when the patients finally contracted pulmonary tuberculosis they bore it without much disturbance. On the other hand, those free from a previous history of tuberculosis went rapidly into a decline when they became infected with pulmonary tuberculosis. The experiences related seem to teach that the best way to avoid phthisis is for the persons who have once been tuberculous to become reinfected at long intervals, avoiding cumulative action by the length of the intervals. Another point brought out by the examinations was the small number and infrequency of tubercle bacilli in the sputum of the elderly. The aged tuberculous seem able to expel the greater portion of their tubercle bacilli by the intestines; the sputum only exceptionally contains them. The tuberculin tests are of greater significance in diagnosis and prognosis in the aged than in adults generally; pulmonary tuberculosis in the aged is frequently so modified by cardiovascular or renal disturbances that it is difficult to diagnose. This difficulty is enhanced by the more or less complete absence of tubercle bacilli from the sputum.

ONE HUNDRED CASES OF ACUTE ARTHRITIS AMONG NEGRO LABORERS ON THE PANAMA CANAL*

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The diagnosis of acute articular rheumatism is, to my mind, as frequently misapplied in acute arthritis as that of influenza in pulmonary affections and that of malaria in obscure febrile conditions. Under acute articular rheumatism should be included, of course, only those cases of acute arthritis in which there is a rapid invasion, similar to that in an infectious disease, with high temperature, hot, swollen, tender joint or joints, acid sweats, marked leukocytosis with polynuclear increase, and a marked tendency to endocarditis, and in which the administration of salicylates proves them to be a specific remedy. It is unfortunate that the term "rheumatism" has ever been used to designate other joint affections.

Some of the most noted authorities in tropical medicine declare that acute articular rheumatism and scarlatina are both practically non-existent among natives in the tropics. No one will deny that scarlatina occurs in Panama in imported cases only, but questions would probably be raised as to the absence of acute articular rheumatism. To gain information about the types of arthritides encountered among our laborers and about the result of treatment, at the suggestion of Dr. W. E. Deeks, a study was begun about a year ago of one hundred consecutive acute cases.

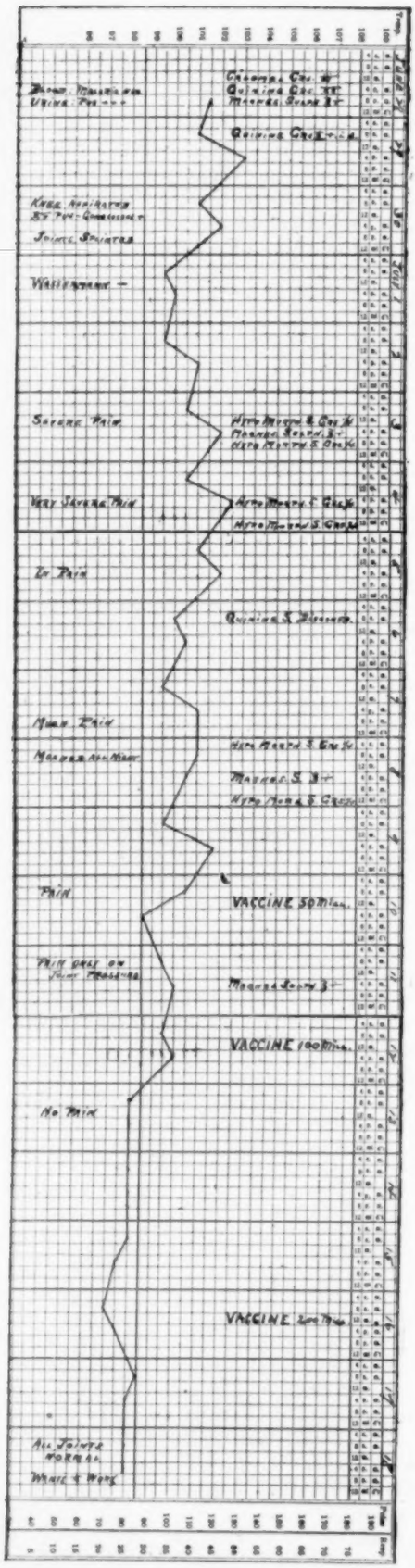
Before going into detail, it must be stated that traumatic arthritis, arthritis occurring during the course of pyogenic infections and arthritis frequently seen in disseminated tuberculosis have been excluded. The cases analyzed were admitted during the past twelve months to Section 1, the adult male negro medical wards of Ancon Hospital. It is highly improbable that, with one exception, any of these men have ever lived anywhere else than in tropical regions. The majority of them came to the Isthmus from the West Indian islands (thirty from Barbados and twenty-four from Jamaica), and most of the remaining ones from the smaller islands. A few were Central or South Americans. Only one was born in the United States of America.

The final diagnosis made on discharge of these one hundred patients in order of type frequency and read either as number or percentage was:

	Cases
Syphilitic arthritis	63
Gonorrheal arthritis	28
Undetermined arthritis	6
Dysenteric arthritis	2
Tuberculous arthritis	1
	100

The fact that syphilitic arthritis should constitute 63 per cent. of the total arthritis morbidity among a class of laborers is undoubtedly astonishing to one not familiar with our daily work on the Isthmus. We ourselves would hardly have the temerity to make such a statement here, on clinical observation alone, were it not corroborated by a series of excellently executed Wassermann tests, followed by the old, reliable therapeutic test of mercury and iodids, occasionally supplemented by the use of the latest achievement in syphilis therapy — salvarsan. Dr. L. B. Bates, bacteriologist of the Board of Health Laboratory, has been as much

* Read before the Isthmian Medical Society, Jan. 18, 1913.



Hospital ward chart of a case of acute gonorrheal arthritis (right and left knees, right ankle, right thumb, left shoulder), showing the specific effect of vaccine therapy.

interested in these cases as the clinicians and has made a Wassermann test in each of these one hundred cases with a positive result of 59 per cent. Sixty-three of these one hundred cases were diagnosed as syphilitic; in 93.6 per cent. of these sixty-three cases the Wassermann test was positive. Objection may here be raised as to the validity of the Wassermann test in as highly malarial a region as ours, since it has been asserted that this test is frequently positive in malaria. The fallacy of this assertion has been amply proved in a paper by Dr. Bates,[1] read at the annual meeting of the American Medical Association last June. To this paper I must refer those seeking information as to the technic employed. Clinically, our experience with several thousand Wassermann tests performed by Dr. Bates prompts me to say that the result has seldom been positive in cases in which no physical evidence of syphilis could be found. A few cases of frambesia are, of course, excluded here. Another objection to the acceptance of our analysis would grant the syphilitic infection, but question its relation to the arthritis. The answer to this objection is (not to mention the result of therapy) that it has been possible to diagnose the majority of the syphilitic arthritides as such before the Wassermann test was made.

DIAGNOSES OF SYPHILITIC ARTHRITIS

Since the days of the Wassermann test, clinicians have realized more fully than ever before that a single lesion of syphilis not infrequently exists without any concomitant signs of the disease. A patient may never have had a macroscopic chancre and so can give no history and show no scar of the disease; or the primary sore was insignificant and healed without leaving evidence. And furthermore, the secondaries may have appeared only as an erythema, unrecognizable in a negro, and often overlooked or misinterpreted in a white patient. So it comes that, while most of our cases of syphilitic arthritis have shown other lesions of the disease, some have presented only joint involvement. The average patient is admitted to the ward with a multiple, rather subacute arthritis. A genital scar is frequently found. As a rule, the patient has no fever and the joint pain is severe only on pressure. The joints usually involved are the knees, elbows, sternoclavicular, ankle and wrist. The finger- and toe-joints are seldom affected. There is moderate swelling but marked effusion is rare. The involvement of the periarticular bursae and of the tendon sheaths is very rare. In other words, the inflammation is limited to the joint, the latter being simply boggy and tender to pressure. Only four of our sixty-three cases gave evidence of secondary skin lesions. Frequently the lymphatic glandular enlargement and induration still remained. The most reliable concomitant sign of syphilitic arthritis was acute osteoperiostitis of the sternum and of the long bones, especially of the lateral surface of the tibia. The patient was usually very sensitive to even moderate pressure when this existed. Leukocytosis was seldom present and when it did occur it was not marked.

The cases, with few exceptions, probably belonged in the late secondary stage. A few cases, which resisted treatment for several months and which were followed by partial fibrous ankylosis, were undoubtedly of the tertiary, gummatous variety. One patient, the only one readmitted in the total series, came to the hospital first with acute syphilitic arthritis. The Wassermann test was positive. As soon as all pain had disappeared under treatment, that is in fourteen days, the patient requested discharge. About six months later he was again admitted with a typical generalized papulopustular syphilid but normal joints. The Wassermann test was still positive. When treatment was resumed, the rash disappeared and the patient again considered himself cured, and asked for discharge, which was granted under protest. Several weeks ago he was readmitted for the third time, suffering with the second attack of syphilitic arthritis, and showing only the scars of the previous pustular rash. The Wassermann test was positive for the third time. Two weeks' treatment of mercury and iodids was so effective that he refused the proposed salvarsan injection. He is again at work and probably thinks himself entirely well. This case, in which acute arthritis preceded and followed a papulopustular syphilid, seems to indicate that most of our similar syphilitic arthritides are late secondaries, rather than gummatous

1. Bates, L. B.: The Wassermann Test in the Tropics, Arch. Int. Med., November, 1912, p. 479.

involvement of the joints. The Wassermann test, as previously stated, being positive in 93.6 per cent. of the cases, shows a positive result attained only in secondary syphilis. Then again, the rapid recovery under appropriate treatment, without impairment of function in almost all cases, points to this conclusion.

The question why syphilitic arthritis is so common among our negro laborers is probably as difficult to answer as the one why the parasyphilids, tabes and paresis are so extremely rare. The theory taught by our chief of clinic, Dr. W. E. Deeks, that a chronic infection will often attack those organs or tissues of the human body that are subject to the greatest physiologic activity or injury in the particular patient's daily mode of living, seems to receive noted support in this instance. We are informed that in the white patient wards of this hospital syphilitic arthritis is very much less common, proportionately, than among our negro patients.

TREATMENT OF SYPHILITIC ARTHRITIS

To appreciate how we are handicapped in treating this or any other disease thoroughly, one must know the ignorance of our negroes and their consequent lack of cooperation. The negro, with few exceptions, considers himself sick only when in pain or disfigured. As soon as the papulopustular syphilid has disappeared, or the affected joints are relieved of their pain and swelling, he demands his discharge from the hospital, little believing, and caring less, that sooner or later he may be crippled permanently as the result. Our aim, therefore, must be to give the maximum amount of specific treatment in the short time our patient sees fit to remain in our care. The intravenous injection of salvarsan has done much to help us in this difficulty, but it has its drawbacks in the fact that the patient refuses operation, as he calls it. The intramuscular injection of mercury has the same disadvantage.

Our usual treatment, therefore, in acute syphilitic arthritis is rest in bed with splinting of the affected joints, and the administration of mercury in the form of protiodid by mouth, and of blue ointment by inunction, combined with potassium iodid treatment. Dental decay and pyorrhea alveolaris have made such inroads among our negroes that special care has to be exercised in giving mercury. Experience has taught us that an extemporaneous mouth-wash composed of 1 dram of tincture of iodin to 1 pint of water, used frequently with digital massage of the gums, is as good as anything in temporarily checking suppuration and warding off salivation. In giving protiodid we begin with 1/6 grain three times daily, increasing the dose by 1/6 grain daily until the total dose per day is 2 grains, that is on the tenth day. This maximum dose is then continued without further increase. While the protiodid is given after meals, the potassium iodid is given before, in essence of pepsin as a vehicle. It is prescribed three times daily, beginning with 5 grains and increasing 5 grains per dose until 150 grains are given daily. This maximum dose is reached on the fourth day, and continued. Those who know our negro will appreciate that the blue ointment given in one dram doses daily for inunction is a treatment after his own heart. No white man ever "anointed" himself more religiously than these negro patients, who have a profound regard for ointments as remedial agents.

This outline of mixed treatment may seem very severe, but under the circumstances it probably is justified by the results obtained. The urine is, of course, always watched for evidence of mercurial albuminuria. Usually, in about a week, the arthritic pains are gone, and the swelling is scarcely noticeable. If during this treatment symptoms of kidney irritation, mercurialism or iodism arise, the treatment is of course temporarily suspended. Usually at the end of ten days one begins to notice the fetid breath, and the patient will then complain of sore teeth when shutting his jaws tightly. Iodism usually shows itself by acute coryza, a rise in temperature, swelling of the parotids, salivation and a puffiness of the eyelids. Acute indigestion and diarrhea are seldom encountered. At the end of two weeks, all syphilitic joints without organic changes are free from tenderness, swelling and restricted motion. An attempt is then made, usually without avail, to make the patient realize the necessity of thorough eradication of the disease. Almost invariably this is taken as a joke, the patient believing himself well, and the demanded discharge is given. How effective an intensive mixed treatment, even though very short, may be is shown by the fact that, during the year, the only case of the sixty-three readmitted was the one previously mentioned. The total number of days in the hospital of uncomplicated syphilitic arthritis cases was 1,190, an average of 18.8 days per man.

DIAGNOSIS OF GONORRHEAL ARTHRITIS

In the typical gonorrheal joint we have a picture quite different from that seen in the well-developed syphilitic joint. Here the temperature is generally elevated to 101 and 102 F. The entire aspect is one of a more acute infection. Pain and tenderness are much more marked even without pressure. In the worst cases the pain is excruciating, both day and night. While in the syphilitic joint the effusion is not common nor extensive, the opposite is true in gonorrheal arthritis. The joints are frequently markedly distended with fluid, which, on aspiration, is rather viscid, greenish yellow in color, and microscopically loaded with pus cells. Occasionally the gonococcus is found, though it may be necessary to hunt for some time to demonstrate its presence. An extension of the inflammation and effusion to the periarticular bursae and tendon sheaths is as common in gonorrheal as it is rare in syphilitic joints. There seems to be no difference in the tendency of these two diseases to affect multiple joints, but involvement of small joints, especially of the fingers and toes, speaks in favor of gonorrheal arthritis. Osteoperiostitis of the sternum and of the shaft of the long bones has been observed only in syphilis. The Wassermann test in uncomplicated gonorrheal arthritis has always been negative. It is to be hoped that the more recently developed complement-fixation test for gonorrhea will be of as great value in the diagnosis of these cases as the Wassermann test is in the syphilitic variety. The blood-picture of gonorrheal arthritis does not differ enough from that of the syphilitic affection to be of any value in differential diagnosis. Very severe cases show at times a marked polynuclear leukocytosis, but the average case shows slight, if any, increase in leukocytes. The tendency to improve rapidly or get well, even without treatment, is much more characteristic of gonorrheal than of syphilitic arthritis.

This may be explained by the theory that in the former we have a sudden metastasis from a chronic walled-off focus of a disease not constitutional. The action of the endotoxin of the gonococcus, being very irritating, causes a severe reaction and a rapid formation of antibodies, which soon conquer the invading organisms. In the other, the syphilitic, the disease is

constitutional and antibodies are already present throughout the body. For some reason or other the natural defense of the body, the antibodies, becomes weak or otherwise inefficient. This is naturally followed by new disease manifestations of a more or less acute character. It may then be assumed that a body debilitated by a losing fight against an ever-present toxin will require more time to gain the upper hand than one making its first stand against a sudden invasion. This may also explain why syphilitic arthritis, with its permanently present, though variable, antibody, is usually subacute from the beginning, while gonorrheal arthritis, with a primarily absent antibody, is frequently very acute.

It is probably true that in gonorrheal arthritis the chronic focus of the disease, whence the metastasis occurred, can always be located with proper skill and facilities. The posterior urethra, the prostate vesicles, and the epididymis will usually be the place to look for it. Pus corpuscles and shreds in the urine of a male patient are always very suggestive. Massage of the prostate and vesicles with expression of pus, or urethroscopic examination will often show the site of the chronic infection.

TREATMENT OF GONORRHEAL ARTHRITIS

In the thorough treatment of gonorrheal arthritis of our negro patients, we are placed at a twofold disadvantage. As far as the patients' inability to understand the need of an eradication of the disease focus is concerned, conditions are, of course, the same as in syphilis. We are personally handicapped, moreover, by the fact that in order to eradicate a gonorrheal focus, the cause of joint metastasis, special skill and training with ample time and facilities are necessary. It is a task for the better class of genito-urinary specialists. In a commercial undertaking, like the building of this canal, the employer cannot be expected to furnish such treatment in all cases, if only for the reason that the patient himself would rebel against the loss of time and pay. Our main aim then must be to refit these men in as short a time as possible for their labors on the canal. We have found that nothing gives better results in these cases than to place the patient in bed, administer a urinary antiseptic, usually hexamethylenamin, aspirate the pus from the most severely involved joints, splint and bandage them, and give an eight-strain gonococcus stock vaccine hypodermatically (not intramuscularly).

Three years ago the results of vaccine therapy in metastatic gonorrhea were very doubtful, owing to the small dosage then advised by authorities. For the past two years we have been giving four injections of fifty million, one hundred million, two hundred million and four hundred million respectively, with intervals of one day between doses. While in some cases of gonorrheal arthritis a sufficient number of antibodies will develop to permit recovery without vaccine treatment, in most cases the patient will suffer far less pain and get well much more rapidly with the treatment. Not infrequently the terrific pain, which can be dulled only by opiates, is abolished in six hours following the first injection of vaccine. But the most brilliant results obtained with vaccine are in those very acute cases in which organic joint changes have not taken place as yet, and in which sufficient antibody cannot be manufactured. The suffering in these cases can be compared only with renal or gall-stone colic.

An example of a case of this kind occurred last spring, when, through some oversight, our vaccine supply was exhausted and a new supply not furnished. As can be seen from the hospital chart, this patient had a temperature of 100 to 103 F. for twelve days after admission, in spite of all treatment. Morphin sulphate had to be given frequently in ¼ grain doses by hypodermic to dull the severe pain as much as possible. Intracellular gonococci were found in the pus aspirated from one knee-joint on the third day. The Wassermann test was negative on the fourth day. On the thirteenth day following admission, a supply of stock vaccine was received and fifty million killed bacteria were given immediately. The result was extremely gratifying. That night the pain ceased and the temperature fell to normal for the first time since the patient's admission to the ward. The temperature rose again to 100 F. the next day, but the pain did not return. On the third day of vaccine treatment a second dose of one hundred million bacteria was given, with the result that the next morning the temperature was normal and remained so. The effusion absorbed rapidly. On the ninth day of treatment, after having received a total of three hundred and fifty million killed bacteria in three doses, the patient said he felt perfectly well and requested to be sent back to work.

Keyes, Jr., in his admirable text-book on genito-urinary diseases, 1911 edition, states that 75 per cent. of gonorrheal arthritides should be markedly improved by vaccine treatment. This same author also speaks of the brilliant results sometimes obtained in gonococcus septicemia. He warns his readers not to expect the impossible of vaccine therapy in cases in which organic bone and tendon changes have already taken place. Fortunately for our patients and for us, we seldom encounter gonorrheal osteo-arthritis or septicemia. A word of caution may not be amiss here, calling attention to the fact that some vaccine on the market is poorly put up and probably carelessly prepared. Only the best can be good enough in specific medication.

All of the cases of gonorrheal metastasis in this series recovered without impairment of function. The total number of days in the hospital of uncomplicated cases was 672; the average stay per man was twenty-four days. That the treatment just outlined is efficient temporarily is shown by the fact that during the year there were no readmissions. It is possible that the Bier hyperemic treatment used in conjunction with vaccine would give still better results. The hypodermic administration of the patient's own joint fluid, sterilized, is another form of treatment that may be worth trial, as it is possible that the tendency to recover in acute gonorrheal arthritis may be due to an antitoxin or antibody to be found in the joint effusion.

UNDETERMINED CASES

In this group were classed six cases of undiagnosed arthritis. The Wassermann test was negative in all of them. Fever was present in only two. Several recovered rapidly without treatment and the remainder recovered under diverse modes of treatment. Very mild arthritis, in which syphilis can be excluded and in which spontaneous recovery rapidly ensues, will occasionally have to be put in this group. It is probable that some of the milder cases recorded in the first two groups really belong here. We have not been able to detect a gonorrheal arthritis in a syphilitic patient. It is only reasonable to assume that this does occur, but it is also readily seen that a mild gonorrheal arthritis, in a syphilitic with a positive Wassermann test, might improve rapidly during the antisyphilitic treatment, and so be classed as of syphilitic etiology. As in all other diseases having a common symptom-complex, the borderland, complicated

and mixed cases are the most difficult to diagnose. The complement-fixation test for gonorrhea in conjunction with the same test for syphilis may point out some of these complicated or mixed cases so that they can be correctly and fully diagnosed and receive the benefit of combined treatments.

DYSENTERIC CASES

Occasionally during the course of or following an attack of dysentery, presumably of bacillary origin, we see a sudden rise of temperature with an effusion into the bursae of the larger joints, accompanied by only slight pain. The patient recovers in a short time with nothing but symptomatic treatment. A knee fluid culture, kindly made by Dr. L. B. Bates in one of these cases several years ago, was sterile.

TUBERCULOUS CASES

The only case of primary tuberculous arthritis in this series was of the usual knee-joint variety, monarticular. The Wassermann test was negative. The diagnosis was arrived at mainly by exclusion, the presence of continued fever, localized tenderness and exostoses about the epiphysis and head of the bone, and an *x*-ray plate kindly made by Dr. T. Earhart of this hospital. The *x*-ray is of the greatest value both in diagnosis and prognosis in all cases of arthritis showing bone destruction. An arrest of the process was obtained in this case by splinting and general rest, in conjunction with the usual dietetic and hygienic treatment of tuberculosis. There was partial ankylosis when the patient was discharged.

SUMMARY

Ninety-one per cent. of the acute arthritides of this series admitted to the male negro medical wards during the past year were caused by venereal disease. Sixty-three per cent. were of syphilitic etiology, the Wassermann test being positive in 93.6 per cent. of these cases. An intensive mixed treatment, carried to the point of maximum tolerance, has enabled these men to return to work temporarily in an average of 18.8 days.

Twenty-eight per cent. were of gonorrheal origin. Vaccine treatment gave very good, sometimes brilliant, results in the great majority of cases. Unfavorable results due to the treatment were not noticed. The average number of days under treatment per man was twenty-four.

All other types of arthritis were in such minority that they are practically negligible.

Acute articular rheumatism was not encountered, and acute or chronic endocarditis was not recognized in any of the total one hundred cases.

In conclusion, I wish to extend my thanks to the following gentlemen for permission to publish: Col. W. C. Gorgas, Medical Corps, U. S. A., chief sanitary officer; Col. Charles F. Mason, Medical Corps, U. S. A., superintendent of Ancon Hospital, and to Dr. W. E. Deeks, chief of the medical clinic, on whose service these cases occurred.

The Milk of Indian Buffaloes.—According to Consul Norton, at Bombay, India, investigations carried on during a period of fifteen months on a number of buffalo cows belonging to a dairy at Poona, show that the Indian buffalo surpasses the best breeds of milk cows in the production of butter fat, 7 to 8 per cent. being common, and 10 per cent. having been found. The milk is white, and the butter usually white. The percentage of proteins in buffalo milk is distinctly greater than in cow's milk. Milk-sugar and minerals correspond closely to those of cow's milk.—*Daily Consular Reports.*

RABIES

A PATHOGNOMONIC SIGN GENERALLY OVERLOOKED

M. B. WESSON, B.S., M.D.

EL PASO, TEXAS

Aside from the pioneer communications on hydrophobia, very little has been written on the subject, and that little is extremely vague and indefinite. Having an opportunity to observe a series of over two hundred rabbits inoculated with rabies (for use in the El Paso Pasteur Institute), as well as a number of animals infected with "street rabies," I was impressed with the uniformity of the development of the symptoms, and particularly of a left hemiplegia starting in the leg (simulating Landry's paralysis) of which I could find only vague references in the literature.

The first symptom of the disease in the rabbits was a general nervousness; the entire body seemed to be trembling and, if the animal was startled by the sudden clapping of hands, it would stagger and apparently have great trouble in maintaining its balance. Soon a limping of the left hind leg was noticed and, if the rabbit was taken from the cage and made to hurry across the floor, that leg gave way entirely. In a short time a weakness in the corresponding front leg developed, then in the neck, as in acute ascending paralysis. Hence when the animal attempted to walk it would move around the cage clockwise, supporting its weak left side against the wall. A few of the rabbits had convulsions, and when that happened they rolled over and over from right to left. If the rabbits are not molested they will remain crouching in a corner of the cage, and then the first apparent weakness is the left torticollis; but if the animal is made to move, the paralysis will be found to be greatest in the left hind leg. The rabbits lie fully extended on the left side as the paralysis progresses, apparently dead, the only sign of life for several hours before the end being an occasional movement of the muscles about the nose and eyes.

In man after the expiration of the incubative period, the patient complains of loss of appetite and headache; he becomes depressed, ill-tempered, apprehensive and excitable; then the breathing becomes difficult and labored, accompanied by spasmodic contractions of pharynx and larynx.

It was at this stage of the disease that I saw J. M., an albino Mexican, who had been bitten about the middle of September by his pet dog (which died the following day in a convulsion). He was sitting up in bed, as he could not breathe in a recumbent position. The stridulous breathing sounded like the bark of a dog, and the frequent shaking of his head emphasized the resemblance and caused the neighbors to make the correct diagnosis. He attempted to convince them that they were wrong by frequently demonstrating how easily he could drink water, but after one or two swallows he always became strangled; salivation was marked. He had a strong grip with his right hand, but that of his left was very weak. On attempting to walk he seemed to have perfect control over his right leg, but his left gave way under him and he had to be supported on that side. As he moved across the room his entire left side was weak, his head almost lying on his left shoulder, which in turn drooped. The following day hallucinations appeared, which caused the patient great anxiety and excitability. A little later paroxysms occurred which resembled maniacal attacks with delirium. They were of short duration, but large doses of morphin, chloral and potassium bromid had no effect in controlling them. Paralysis became general, and death took place suddenly on the fourth day, during a paroxysm, from asphyxia.

On October 5 a neighbor's dog, which had been bitten by that of the Mexican boy, became restless and ill tempered. He bit the grocery boy (on the hand) and a young hog (on the nose) before he was frightened away by the owner. Three days later it was noticed that something was wrong with the dog's left hind leg. When he wanted to lie down he would turn round and round several times from right to left and then when he allowed his left thigh to touch the floor he would at once bound up with a sharp cry, holding the leg in the air and whining as if in pain. The following day the leg was completely paralyzed, and there was a weakness of the corresponding front leg and neck. The development of the paralysis, preceded by a left hemiplegia, and followed by death, was the same as seen in the rabbits. (The brain was sent to the local Pasteur institute and they reported the presence of Negri bodies.) The groceryman was immediately started on Pasteur treatment, and the bitten hog isolated. On November 12 the hog became restless and began to limp with the left hind leg; it was unable to drink, though it made frequent attempts and would put its head to the level of its eyes in a bucket of water; salivation became marked, and progressive paralysis and death, as seen in the rabbits, followed the next day.

An interesting point here is the fact that a "mad" fox-terrier at almost precisely the same time bit a man and a hog. The man was given Pasteur treatment and is well, while the hog received no treatment and died of rabies.

SUMMARY

1. These cases are reported to call attention to the characteristic development of the paralysis of rabies as noted in a series of animals, including man, dog, hog, guinea-pigs and rabbits.

2. The initial site of paralysis was the "left hind leg," and this in a short time developed into a left hemiplegia, the paralysis eventually becoming general.

3. In an animal that has suddenly become extremely nervous and irritable, the development of a weakness in the left hind leg, without any apparent reason, is sufficient to warrant a tentative diagnosis of rabies.

THE PREPARATION AND EMPLOYMENT, IN A SERIES OF CASES, OF A POTENT POLYVALENT ANTISTAPHYLOCOCCIC SERUM *

B. A. THOMAS, A.M., M.D.
PHILADELPHIA

Impressed by the questionable propriety of the employment of active immunity with bacterins in the acute stage of an infection, whether localized or generalized, as in furuncle or septicemia — conditions in which, it seems logical to infer, the human organism is already sufficiently stimulated by viable bacteria to the production of specific antibodies, if not completely overwhelmed as in the latter instance, rendering the employment of an inactivated specific antigen inadvisable if not positively harmful — I attempted in September, 1909, the preparation of an antiserum which I hoped might prove useful in antagonizing the diverse lesions of that commonest of all pyogenic cocci, the *Micrococcus pyogenes aureus*.

Various attempts have been made on horses and other animals to produce a potent antistaphylococcic serum, but they have almost invariably resulted unsuccessfully, although Doyen and Paltchikowsky assert that they have succeeded partially. Emery states that "it is possible by special methods to produce a serum which has a slight bactericidal effect, but normal human serum or the serum of a patient who has been submitted to a course of antistaphylococcic vaccination is quite powerless in this respect." Schorer asserts that "the value of the serum . . . is inconsiderable, and its injection in the treatment of staphylococcus infections is seldom or never warranted." Such noted authorities as Ehrlich, Bordet and Citron omit even to mention, in their works on immunity, the existence of antistaphylococcic serum. It is therefore with considerable trepidation that I venture to assert the successful preparation of a potent polyvalent antistaphylococcic serum.

The experiments of Neisser and Wechsberg show the production of a typical hemolysin by the *Micrococcus albus* and *M. aureus* in culture growth. Following the subsequent discovery by these two serologists that human and certain other animal serums normally contain antistaphylolysin, although less than is the case with immune serums, Bruck, Michaelis and Schulze have attempted to employ the presence of antistaphylolysin in blood-serum as evidence of the existence of staphylococcic infection.

Furthermore, agglutination tests have shown that the staphylococci in pus may be agglutinated by the serum of the patient, while those from the air, skin, etc., are not so influenced, thus demonstrating, as is the case with many other bacteria, the variability or diversity of the strains of the bacterium in question. I feel convinced that one of the most important factors conducive to the successful production of our serum has been the utilization of staphylococcus cultures from many sources, thereby effecting a polyvalency of unmistakable potency.

PREPARATION OF THE SERUM

Eighteen strains of the *Micrococcus aureus* were isolated in pure culture from as many various sources, as follows:

Furunculosis	8
Carbunculosis	4
Subcutaneous abscesses (scalp)	3
Thoracic empyema	1
Axillary abscess	1
Septicemia (osteomyelitic)	1
Total	18

Each of these strains was cultured on agar-agar tube-slants at 37 C. (98.6 F.) for twenty-four hours, and the resultant growths washed off by the addition of 5 c.c. of bouillon to each of the cultures. The combined 90 c.c. were then shaken mechanically for fifteen minutes; 0.25 c.c. of this bacterial suspension was then flooded on the agar-agar surface of each of two Petri dishes, presenting, respectively, an area of 12½ square inches. The growths from the two Petri dish cultures, after an incubation at 37 C. for twenty-four hours, were washed off in 30 c.c. of sterile 0.85 per cent. sodium chlorid solution. This bacterial suspension was standardized so that each cubic centimeter was estimated to contain 32,400,000,000 cocci and then sterilized by submersion in a water-bath at 60 C. (140 F.) for one hour.

From the same polyvalent staphylococcic suspension, agar-agar tube-slant cultures were made preparatory to the determination of the opsonic indices[1] — the controls

* From the William Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Read before the Philadelphia Pathological Society, Dec. 12, 1912.

1. In all determinations of the opsonic index of the animal, washed human leukocytes were employed for the purpose of phagocytosis.

by which the degree of immunity of the animal to be inoculated was governed.

The animal selected for the purpose of immunization was a full-grown, 3-year old, vigorous, uncastrated ram weighing 165 pounds. His opsonic index, Sept. 9, 1909, prior to inoculation, for the polyvalent staphylococcic culture was determined to be 0.12. The curve of the indices during the course of inoculations can best be studied by reference to the accompanying chart. On the same date the ram received intraperitoneally the initial dose of 972,000,000,000 dead staphylococci. September 15, the ram's opsonic index was found to be 0.51, and he was inoculated with the growth from three Petri dishes, containing 1,050,000,000,000 cocci heated at 60 C. for one hour. September 23, the animal's index had fallen to 0.27, and he received intraperitoneally, 903,600,000,000 staphylococci heated at 60 C. for half an hour.

October 7, the index was 0.35 and the ram was injected with the agar-agar growth from six Petri dishes, estimated to contain 32,000,000,000 cocci heated for half an hour at 60 C. October 13, the animal received his fifth inoculation of 186,560,000,000 cocci,

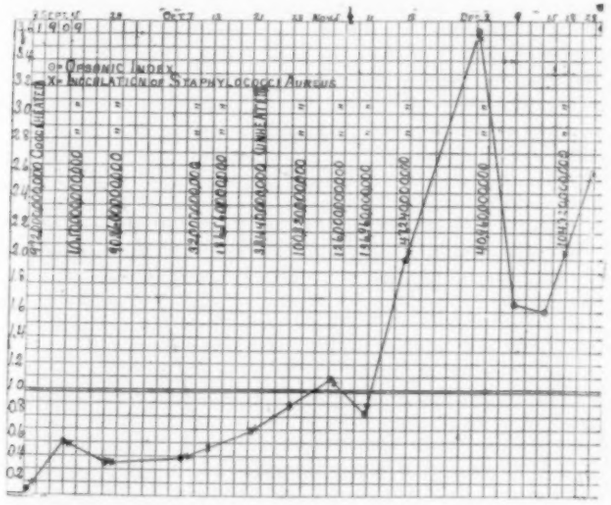


Chart showing inoculations and curve of opsonic indices illustrating immunity of ram.

heated at 60 C. for only fifteen minutes. October 21, the eighteen various strains of staphylococci were again subcultured and fresh polyvalent suspensions prepared for Petri dish growths and culture for the determination of the opsonic index. The ram's index on this date was found still to be in the negative phase, namely 0.64, and his health appeared to be excellent. Accordingly it was decided to continue the inoculation with living bacteria, and 33,440,000,000 unheated staphylococci were injected intraperitoneally. One week later another injection of 100,320,000,000 living cocci was made. November 5 the opsonic index had risen to 1.02 and the ram received intraperitoneally the bacterial suspension from four Petri dishes, containing approximately 126,000,000,000 unheated staphylococci. Six days later the index had fallen to 0.8 and the ram was inoculated with 136,960,000,000 unheated cocci. November 18 the opsonic index was found to be considerably higher, reaching 2.0; the animal was inoculated with 47,240,000,000 unheated bacteria. December 2, the ram's immunity apparently reached its highest point, 3.55; nevertheless in an attempt to carry it still higher an injection of 40,960,000,000 unheated cocci was given. The indices determined seven and thirteen days later were found to have fallen to 1.65 and 1.6, respectively. December 18, the seventh inoculation (104,720,000,000 unheated cocci), with living bacteria, and the twelfth injection in all of staphylococci, was given. Five days later, December 23, the opsonic index was found to have risen to 2.6 and on the following day the ram was bled to death aseptically from the carotid artery. The serum was separated from the clot and hermetically sealed in glass ampules containing 1 and 2 c.c. each.

The employment, practically, of this product of which I still possess a few sample ampules, I shall describe in twenty-eight case reports largely from the Surgical Out-patient Service of the Hospital of the University of Pennsylvania.

EMPLOYMENT, CLINICALLY, OF ANTISTAPHYLOCOCCIC SERUM

Although it was my desire to test the value of this serum practically in cases of staphylococcic bacteriemia, I have been disappointed in that respect, since there has been but a single case of septicemia, in which the blood-culture demonstrated the *Micrococcus aureus*. Consequently I have been obliged to apply it therapeutically, during its period of probable potency in a series of carbuncles and furuncles, many of which have been of an aggravated type.

CASE 1.—Feb. 8, 1910. S. S., aged 15. An acute osteomyelitis of tibia, following osteotomy, developed a typical septicemia. Cultures both from the medullary cavity of the tibia at operation and subsequently from the blood demonstrated *M. aureus*. Later a suppurative arthritis of knee, demanding arthrotomy, and a suppurative inflammation of the wrist supervened. Bacterin therapy, instead of improving, probably aggravated the patient's condition. A course of hypodermic medication with mercury succinimid, strychnin sulphate, iron citrate and arsenic trioxid converted a most desperate condition into a curable case. After an illness of ten months, inoculations with antistaphylococcic serum were instituted. During a period of four weeks, five subcutaneous brachial injections of 1, 2, 2, 1.5 and 2 c.c., respectively, of the serum were administered. The patient exhibited marked improvement, his wrist healed immediately, he was able to go about on crutches, he gained greatly in weight, all sinuses about the knee, with a single exception, healed and he was discharged from the hospital precisely one month later.

CASE 2.—March 11, 1910: J. P., aged 20. A virulent furunculosis of the head, face, neck, shoulders and arms had existed for two or three weeks. The infection was advancing rapidly, several new boils appearing daily; patient was feverish and obviously suffering from marked toxemia. Two c.c. of antistaphylococcic serum were injected subscapularly; two days later 2 c.c. more; four days later, 3 c.c. additional, and after another interval of four days a final 3 c.c. dose. After the first inoculation no new furuncles developed, and within two weeks the patient was entirely well, even the old boils having disappeared.

CASE 3.—Dec. 3, 1910: V. C., aged 19. A recurrent furunculosis of four weeks' duration began in the axilla and recently manifested itself on the back of the neck. Patient was given 2 c.c. of antistaphylococcic serum subcutaneously. Two days later patient stated that boils on neck and in axilla were practically painless; he felt much better generally than for four weeks, no new boils developed and six days after the inoculation he was discharged cured.

CASE 4.—Dec. 3, 1910: D. E. M., aged 23. Patient had suffered for a week, with no improvement, from a large carbuncle of the back, measuring 2 inches in diameter. One inoculation of 2 c.c. of antistaphylococcic serum caused a marked subsidence in the inflammatory phenomena, and the lesion progressed to a rapid healing.

CASE 5.—Dec. 19, 1910: W. W., aged 24. Patient has a predisposition to furunculosis and recently lost considerable weight. During the past five days he has been the victim of an extensive outbreak of boils, no less than twenty appearing on the leg, thigh, hip and back, all on the left side. He was given an inoculation in the hip of 4 c.c. of antistaphylococcic serum. When seen six days later he felt much improved generally, and had noted the development of but two new boils. A second inoculation of a similar quantity of serum, increased to 6 c.c. one week later, caused the rapid disappearance of all furuncles.

CASE 6.—Jan. 4, 1911: E. B., aged 34. Patient had a carbuncle, similar to the present one, on his wrist eight months ago; the present carbuncle is located on the upper forearm, is about 2 inches in diameter, and has six or eight openings. One injection of 4 c.c. of antistaphylococcic serum caused the lesion to undergo rapid resolution.

CASE 7.—Jan. 10, 1911: L. G., aged 21. A relapsing furunculosis of the back, confined to an area 6 inches in diameter, had existed for two weeks, with little or no tendency toward improvement. An inoculation of 4 c.c. of the serum was given; the result cannot be noted, as the patient never returned to the dispensary.

CASE 8.—Jan. 23, 1911: M. T., aged 21. Three days previously carbuncle developed on neck; this was followed by the formation of three additional associated boils. An inoculation of 4 c.c. of antistaphylococcic serum was given in the scapular region, followed three days later by a second similar inoculation. The effect was marked and the patient proceeded to a speedy convalescence.

CASE 9.—Feb. 14, 1911: P. A., aged 36. Patient was the victim of furunculosis one year ago; during the past three weeks two or three furuncles formed on the neck, followed, the present week, by two additional ones. Two inoculations of 4 c.c. each of the serum, with an interval of three days, caused the rapid disappearance of all old boils and prevented the development of any new ones. Three days later when the patient was discharged he was given a prophylactic dose of 6 c.c. of the serum.

CASE 10.—Feb. 18, 1911: L. P., aged 20. For two weeks, patient has been the victim of a virulent furunculosis; at present he has more than a hundred boils distributed over the hips and lower extremities. An inoculation of 4 c.c. of antistaphylococcic serum in the thigh produced a most pronounced benefit, although during the following four days three new boils appeared. A second inoculation of 6 c.c. of the serum sufficed to produce a complete cure.

CASE 11.—March 20, 1911: H. H., aged 11. Patient was the victim of acute furunculosis. A single inoculation of 15 minims of the serum resulted in immediate cure.

CASE 12.—April 1, 1911: E. McL., aged 17. Patient had acute furunculosis. An inoculation of 2 c.c. of antistaphylococcic serum resulted in rapid convalescence.

CASE 13.—May 21, 1911: G. H. B., aged 21. Patient suffered from an acute boil. An injection of 4 c.c. of antistaphylococcic serum caused the furuncle to heal unusually rapidly with no recurrence.

CASE 14.—May 29, 1911: G. W. L., aged 19. A large, indolent, painful furuncle of the buttock had existed for several days. On the second day after the administration of 4 c.c. of the serum, the condition was markedly improved and the "core" of the boil was readily removed. Healing followed rapidly.

CASE 15.—May 31, 1911: L. A. E., aged 21. Acute furunculosis of the buttock. An injection of 4 c.c. of antistaphylococcic serum remarkably improved the lesion, and convalescence was rapid.

CASE 16.—June 12, 1911: W. W. C., aged 20. Acute relapsing furunculosis of the buttocks. An inoculation of 4 c.c. of antistaphylococcic serum beneficially influenced the lesions, although convalescence was more protracted than is usually the case, owing to the fact that the patient was an oarsman and obliged to row daily.

CASE 17.—June 17, 1911: F. E., aged 20. Furunculosis of the forearm. Inoculations of the serum of 4 and 6 c.c., respectively, with an interval of two days, caused the furuncle to heal rapidly. About one month later a new boil appeared on the leg; this also rapidly disappeared after an injection of 4 c.c. of the serum. No recurrences subsequently were observed.

CASE 18.—June 20, 1911: J. N., aged 21. Furunculosis. June 20: Inoculation with *Micrococcus aureus* bacterin, 4 minims. June 23: antistaphylococcic serum, 2 c.c. June 26: antistaphylococcic serum 1 c.c., no new furuncles. June 29: antistaphylococcic serum, 1 c.c., two small abortive furuncles observed. July 3: *Micrococcus aureus* bacterin, 0.25 c.c. July 6: *Micrococcus aureus* bacterin, 0.5 c.c. July 10: *Micrococcus aureus* bacterin, 1.0 c.c. July 14: *Micrococcus aureus* bacterin, 1.6 c.c. July 17: *Micrococcus aureus* bacterin, 3.5 c.c. July 21: *Micrococcus aureus* bacterin, 2.0 c.c. July 28: *Micrococcus aureus* bacterin, 2.0 c.c. August 15: Has had but one boil on buttock since last visit, but none now for two weeks.

CASE 19.—July 7, 1911: N. B. M., aged 31. Furuncle of forearm. Patient was not observed after the initial inoculation of 20 minims of antistaphylococcic serum.

CASE 20.—Nov. 9, 1911: G. T., aged 25. Carbunculosis of neck. An inoculation of 2 c.c. of antistaphylococcic serum produced a notable improvement in the condition of the carbuncle. Two days later a second injection of 4 c.c. of the serum was given. The lesion healed rapidly and four days later the patient was discharged cured. One year later patient returned with recurrent boils of the neck. This time the treatment consisted of simple incision and drainage and tincture of ferric chlorid internally. No serum was employed, and it is of interest to note that the convalescence this time required just twice the time consumed on the former occasion.

CASE 21.—Nov. 14, 1911: W. M., aged 42; acute furunculosis. Patient has had an attack of recurrent furuncles of seven days' duration; at present three boils are active on the forearm. An inoculation of 3 c.c. of antistaphylococcic serum, repeated three days later by one inoculation of 4 c.c., caused the furuncle to heal very rapidly without recurrence.

CASE 22.—Dec. 8, 1911: G. W. S., aged 61. Furunculosis of the scalp. An inoculation of antistaphylococcic serum of 2 c.c., repeated in eight days by a similar injection, caused the prompt disappearance of all active lesions. At a subsequent visit it was learned that no furuncles had reformed.

CASE 23.—Dec. 9, 1911: C. P. K., aged 22. The present condition, a recurrent furunculosis, seemed to be the exponent of a bacteriemia, originating from an infected wound of the knee associated with inguinofemoral lymphadenitis, fever and other symptoms of a general toxemia, occurring two weeks ago. At present patient suffers from several furuncles on the neck, accompanied with bilateral superficial cervical lymphadenitis. Four c.c. of antistaphylococcic serum were injected on each side below the furuncle-bearing area. Although the patient was greatly improved, two of the three boils having completely healed, two days later 2 c.c. of the serum were again administered on each side. On the fourth day following the patient's first visit, the neck was entirely healed, although some lymphadenitis still persisted. No more furuncles developed, but in order to increase the duration of the immunity, inoculation of autogenous bacterins was utilized. Accordingly an injection of 150,000,000 dead *Micrococci aurei* was given followed after two weeks by a second inoculation of 300,000,000 staphylococci, when the patient was discharged cured.

CASE 24.—Dec. 12, 1911: J. J. R., aged 22; acute furunculosis of neck. An inoculation of 2 c.c. of the antistaphylococcic serum caused the furuncle to heal rapidly. Patient seen one month later was in excellent condition and had had no recurrence.

CASE 25.—March 22, 1912: F. F., aged 23; recurrent furunculosis. During past two months patient has been the victim of repeated boils of thigh and neck. The present offender is quite large and painful. Five days after the inoculation of 4 c.c. of the serum, the furuncle was completely healed. There has been no recurrence to date.

CASE 26.—March 25, 1912: E. G. W., aged 42; carbuncle of neck. Present trouble began one week ago as a small papule; it steadily increased to its present dimensions, 2 inches in diameter, and is extremely painful, preventing all sleep last

night; pain extends to base of neck and even into arms. Patient has had a headache for two days and is nauseated. Four c.c. of antistaphylococcic serum were injected on each side in the suprascapular regions. Two days later, patient declared himself to be 50 per cent. better; said that most of the pain had disappeared. The inflammatory phenomena were remarkably decreased and circumscribed, and the "core" was removed. Two days later the patient was given a second inoculation of 8 c.c. of the serum and discharged.

CASE 27.—April 12, 1912: T. C. N., aged 26; recurrent furunculosis. During the past six months, patient has suffered from recurrent boils in the nose. An inoculation of 4 c.c. of antistaphylococcic serum was administered. The final result is not noted in this case as the patient did not return.

CASE 28.—May 20, 1912: P. Z., aged 12; acute recurrent furunculosis. During the past week at least a dozen metastatic boils have made their appearance, principally on the neck. One inoculation of 2 c.c. of the antistaphylococcic serum was given. This immediately prevented further recurrence and caused the present lesions to heal spontaneously.

SUMMARY AND CONCLUSIONS

1. The antistaphylococcic serum as herein prepared and described possessed unquestionable therapeutic efficiency in a series of conditions, both general and local, due to infections by the *Micrococcus aureus*.

2. Biologic therapy by a potent polyvalent antistaphylococcic serum is more effective in the presence of a staphylococcic bacteriemia than is the corresponding autogenous bacterin.

3. By virtue of the more immediate and decisive effects of the antiserum, it deserves first choice over the bacterin in the treatment of furunculosis and carbunculosis; on the other hand, a more intensive and lasting immunity can be conferred on the individual by supplementing the serum with two or three inoculations of the autogenous bacterin.

4. It is to be regretted that no attempt was made to standardize this antiserum with respect to standard units, since it must be conceded that the therapeutic failure or inefficiency of many serums is referable to the deficiency of the immune body content of that particular serum; or in other words to an improper or incomplete immunization of the animal utilized for the production of the antiserum.

116 South Nineteenth Street.

INTERMITTENT PYURIA DUE TO INFECTION OF THE PROSTATIC UTRICLE

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Geraghty, in March, 1912, called attention to the importance of infections of the prostatic utricle. The two following cases of intermittent pyuria attributable to the same cause are of interest in that such cases must be differentiated from intermittent pyuria due to conditions higher up in the urinary tract.

CASE 1.—A. W. E., clerk, aged 32, unmarried, complained of frequency of urination. His family and personal history showed nothing of interest except an attack of gonorrheal urethritis eight years previously. He stated that his attack had lasted six months and was uncomplicated except for prostatitis, for which infection the gland had been massaged for some weeks. He had noticed no discharge since that time. At irregular intervals for the past three years he had had attacks of frequency of micturition lasting several days. He had noticed that during these attacks his urine seemed cloudy. The attacks were unaccompanied by any other symptoms.

On examination the external genitalia were normal in appearance, and there was no discharge from the meatus. The urine (three glasses) was turbid, the turbidity being due to pus. A catheter coudé was passed into the bladder in order to wash it out preparatory to a cystoscopic examination. It was noticed that the first 50 c.c. of distilled water run into the bladder came away practically clear, which was somewhat surprising in view of the turbid urine he had just passed. The bladder was then filled. The interior was found to be normal. The urine taken from each of the ureters was also clear and normal both microscopically and chemically. When I saw him a week later the urine he passed was perfectly clear and apparently normal. I then by endoscope found the following conditions in the posterior urethra: Verumontanum was swollen, edematous and congested, bleeding easily. The lips at the entrance of the prostatic utricle were glued together. When forced apart with a probe a drop of pus welled out, showing that it was under slight pressure. The pouch was then emptied by means of the instrument devised by Dr. Geraghty (improved by the addition of rings for the thumb and two fingers) and washed out with a 1 per cent. silver nitrate solution. After four such treatments at intervals of five days the patient recovered. He has had no attacks for the past eight months.

CASE 2.—A. M. S., physician, aged 34, unmarried, complained of a "morning drop." He had had an attack of urethritis six years previously. No organisms had been demonstrated in the discharge at the time even after repeated examinations by different men. On a number of occasions he had noticed pus in his urine. At these times he had a sense of fulness in his perineum and aching in his testicles, especially after exercising. On one occasion a shaking chill accompanied by fever and general malaise had ushered in the attack. He had had no frequency of micturition or bladder symptoms at any time.

Examination of morning discharge showed pus but no organisms. Three glasses of urine were all turbid, showing pus. Combined secretions from the prostate and seminal vesicles were normal with the exception of a few pus cells. Neither gland was tender on pressure and both were normal in size and consistency.

Examination of the posterior urethra through the endoscope showed the verumontanum to be very edematous, the entrance to the prostatic utricle forming a deep longitudinal slit 2 mm. in length. The lips were adherent and after separation with a probe a quantity of pus was aspirated. One per cent. silver nitrate solution was injected. The urine became clear in three days. Seven days later when the posterior urethra was examined the lips of the utricle were again found adherent. They were separated and a quantity of pus mixed with spermatozoa aspirated. This happened in three successive sittings, the silver nitrate by eroding the mucous membrane evidently causing the adhesions. I then used a 1:1,000 dilution of liquor formaldehydi, let it remain about five minutes and withdrew it. The secretion aspirated some days later contained no pus but a number of normal spermatozoa. The patient has had no attacks for the past six months.

COMMENT

Geraghty mentions recurring attacks of posterior urethritis as one of the results of infection of the prostatic utricle. In the cases here reported the point of interest is the intermittent pyuria lasting a day or so and followed by the disappearance of all symptoms during the intervals, until sufficient pus accumulated for the pressure to overcome the resistance offered by the adherent opening to the utricle.

The symptoms shown by these patients are not unlike conditions of tuberculous and other infections of the upper urinary tract and should be considered in that connection.

A further point of interest in the second case (reported with permission of patient) was the opening of the ejaculatory ducts within the lumen of the utricle, as each time this was aspirated spermatozoa were withdrawn with the contents of the pouch. This probably accounted for the pain in the testicles of which the patient complained. It is surprising that he did not have a more marked infection of the seminal vesicles and epididymides.

Charles and Lafayette Avenue.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ACNE VACCINE.—(See N. N. R., 1913, p. 221).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Acne Vaccin.—Marketed in packages of six ampoules containing 5,000,000, 10,000,000, 25,000,000, 50,000,000, 100,000,000 and 200,000,000 killed bacteria.

ANTIMENINGOCOCCUS SERUM.—(See N. N. R., 1913, p. 215).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Antimeningitis Serum.—A polyvalent serum prepared from the blood of horses immunized to the meningococcus of Weichselbaum (*Diplococcus intracellularis*), according to the method of Flexner (inoculation of autolyzed cultures followed by living organisms). Put up in a special form of container of 50 c.c. with needle and trocar.

BACILLUS COLI VACCINE.—(See N. N. R., 1913, p. 221).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent B. Coli-Communis Vaccin.—Marketed in packages of six ampoules containing respectively 100,000,000, 500,000,000 and 1,000,000,000 killed bacteria.

SERUM ANTIDIPHTHERICUM AND ANTIDIPHTHERIC GLOBULINES.—(See N. N. R., 1913, p. 213).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Refined and Concentrated Diphtheria Antitoxin (Antidiphtheric Globulin). Put up in a syringe container. Immunizing dose, 1,000 units.

GONOCOCCUS VACCINE.—(See N. N. R., 1913, p. 223).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Gonococcus Vaccin. Marketed in packages of six ampoules containing respectively 50,000,000, 100,000,000, 150,000,000, 200,000,000, 350,000,000 and 500,000,000 killed bacteria.

MENINGOCOCCUS VACCINE.—(See N. N. R., 1913, p. 223).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Meningococcus Vaccin. Marketed in packages of three ampoules containing respectively 100,000,000, 500,000,000 and 1,000,000,000 killed bacteria.

PNEUMOCOCCUS VACCINE.—(See N. N. R., 1913, p. 224).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Pneumococcus Vaccin. Marketed in packages of six ampoules containing respectively 20,000,000, 50,000,000, 100,000,000, 500,000,000 and 1,000,000,000 killed bacteria.

BACILLUS PYOCYANEUS VACCINE.—(See N. N. R., 1913, p. 222).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Pyocyaneus Vaccin. Marketed in packages of six ampoules containing respectively 100,000,000, 500,000,000 and 1,000,000,000 killed bacteria.

STAPHYLOCOCCUS VACCINES.—(See N. N. R., 1913, p. 225).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Staphylococcus Vaccin. Marketed in packages of six ampoules containing respectively 100,000,000, 500,000,000 and 1,000,000,000 killed bacteria.

Polyvalent Staphylo-Acne Vaccin. Marketed in packages of six ampoules containing respectively 100,000,000 killed staphylococci and 20,000,000 acne bacteria; 500,000,000 killed staphylococci and 50,000,000 killed acne bacteria; 1,000,000,000 killed staphylococci and 100,000,000 killed acne bacteria.

STREPTOCOCCUS VACCINE.—(See N. N. R., 1913, p. 226).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Streptococcus Vaccin. Marketed in packages of six ampoules containing respectively 100,000,000, 500,000,000 and 1,000,000,000 killed bacteria.

TYPHOID VACCINE.—(See N. N. R., 1913, p. 227).

Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo.

Polyvalent Typhoid Vaccin. Marketed in packages of three ampoules containing respectively 500,000,000 and 1,000,000,000 killed bacteria.

TRANSFER OF AGENCY.—The Antirabic Vaccine, formerly manufactured by the American Biologic Company, Kansas City, Mo. (See New and Nonofficial Remedies, 1913), is now manufactured by the Sophian-Hall-Alexander Laboratories, Kansas City, Mo.

Therapeutics

CHRONIC URETHRITIS

In spite of the more general discussion of the so-called social evil and the wide-spread dissemination of knowledge concerning the so-called social diseases, specific urethritis, gonorrhea, is not less frequent or less protracted than formerly, and uneradicated gonococcus infection in the male continues to be all too frequent. It is still generally believed by the laity that gonorrhea is a simple disease and syphilis a serious one, and, although they begin to understand that syphilis can generally be cured after several years of proper treatment, they still do not recognize that gonorrhea is difficult to eradicate absolutely, and that apparent cures are very deceptive. Physicians also are too hasty to pronounce a specific urethritis cured, especially as it is so difficult to cause a patient who has no urethral discharge except the merest gleety exudate or a few shreds in the urine to believe that it is necessary to be treated, or to convince him that he could transmit the disease to some innocent woman. While sometimes the physician is at fault, in the majority of instances it is the patient who fails to listen to the physician's warnings; therefore the specialist in genito-urinary diseases should not blame the general practitioner for the many cases of uncured gleet that he has to treat.

This article is not so much to describe in detail the many valuable treatments for chronic urethritis, but is to urge more careful investigation as to the cause of the gleety discharge in any one patient. The urethra should be carefully studied for the localization of the chronic inflammation. Drugs administered internally in gleety conditions are worthless. The continued and prolonged use of urethral injections is not only worthless, but also harmful. A localized inflammation or a slight ulceration may have caused a narrowing of the canal or a stricture of large caliber which causes no

obstruction. In such a condition there is still no question that the proper use of sounds, with massage of the inflamed region, dilatation of the constricted portion to normal caliber and prevention of the irritating secretions from being dammed back of this narrowed spot, often produces a cure; the discharge ceases, the shreds disappear, and gonococci cannot be found in the secretions. On the other hand, since electrically lighted urethroscopes are available, to treat a chronic urethritis without seeking the point or points of inflammation is as inexcusable as treating a sore throat with gargles without looking at the throat.

Dr. Victor C. Pedersen,[1] in two recent papers urges the use of the urethroscope, and describes the various makes. He reminds us that the structure of the urethra is eminently fitted for the growth of germs; it is not a hollow tube, but its walls are in contact, except when dilated by the passage of some fluid or an instrument. As the prostatic portion of the urethra is the widest part, with almost a pouch-like cavity, it forms a good harbor for the gonococci and a good place for their development. From this region they also readily infect the deeper parts of the mucous membrane. The prostatic sinuses on each side of the verumontanum also afford good sites for infection, especially if they happen to be deep. Besides the prostatic ducts, the folds in the roof of the urethra in this region also become easily infected. While the membranous portion of the urethra is less likely to become infected, the bulbous portion, which is more easily distensible and where the mucous membrane contains more folds, becomes easily infected, and in this region ulcerations and strictures are likely to occur.

Pedersen finds that the many mucous follicles along the dorsum of the anterior urethra often form mucous crypts, and when these become infected with the gonococcus the infection is difficult to eradicate. The infecting gonococcus, then, may be looked for not only in the folds of the mucous membrane of the urethra, especially in the bulbous and prostatic portions, but also in the mucous crypts or follicles, in the prostatic ducts, in the seminal ducts, and in the outlets of Cowper's glands. Pedersen also reminds us that after the specific inflammation of urethritis has become chronic there may result a thickening of the mucous membrane, cystic degeneration, inflammation and obliteration of the mucous crypts, and the production of unhealthy granulations which may finally become wart-like or papillomatous in character, and, acting as a foreign body, may perpetuate the chronic discharge, which may continually contain gonococci.

Such papers as these of Pedersen are valuable and necessary to remind the general practitioner continually that gonorrhea is always a serious disease, and that the harm a single attack can cause, both to the individual and to one or more women, must not be forgotten. It is useless for the gynecologist to present continually to the general practitioner the story of the lesions in the female from this germ unless it causes physicians to combat more energetically chronic urethritis or other left-over lesions from an acute gonorrhea. In other words, the best treatment of gonococcic gynecologic lesions is the prevention of chronic gonococcic urethral discharge in the male.

It should also be noted that with a chronic inflammation in the posterior part of the urethra or in the region of the prostate, sexual desire is stimulated, and with sexual gratification there is an increase in the congestion, and the disease is thereby perpetuated.

The lesion in chronic urethritis having been located by the urethroscope, local applications of weak solutions of silver nitrate, from 1 to 5 per cent. or even stronger perhaps, or the application of various more modern silver solutions at three or five day intervals, will frequently effect a cure. If the lesions are small, the swab treatment is best. If a whole region is inflamed, the instillation of from 0.5 to 1 c.c. (7½ to 15 minims) of a silver solution of proper strength at the same intervals is often a better treatment. When there is more serious chronic disturbance such as cystic degeneration or warty granulations, or when the follicles are affected, more scientific and more radical treatment is indicated, and a specialist certainly should be given the care of the patient. Pedersen finds that the best results are obtained by electrical applications with the fulguration wire, as it is termed. He varies the strength of the current from that of mere desiccation to actual cauterization, and he gives the treatment at intervals of from one to two weeks. Naturally such treatment should be given to but one small region at a time. Such electrical treatments must always remain in the hands of an expert. In order to specialize properly in this line of work, the physician should take clinical instruction under an expert.

The subject may be summed up as follows:

1. Acute gonorrhea is always a serious disease.

2. A large number of acute gonorrheas are only apparently cured.

3. Chronic urethral discharge, with or without gonococci, may be caused by lesions in various parts of the urethral tract and its adnexa.

4. Before the treatment of chronic urethritis is begun a careful examination of all parts of the urethra with the urethroscope should be made, as well as the usual examinations of the urine.

5. A urethral discharge, if evidenced by nothing more than a considerable number of shreds, should not be considered satisfactorily cured, but should be carefully investigated by an expert, and if definite lesions are found, the proper treatment should be administered by one who has specialized in genito-urinary work.

It is only by recognizing these conclusions as presenting fairly the menace of gonorrhea to the public that the serious gynecologic consequences can be prevented.

1. Pedersen, Victor C.: New York Med. Jour., Oct. 19, 1912, p. 779; A Light-Carrier with Lens and a Rheostat for Urethroscopy, THE JOURNAL A. M. A., Jan. 18, 1913, p. 182. Dr. Pedersen also ably discusses the treatment of the acute stage of specific urethritis in the New York Medical Journal, Feb. 15, 1913, p. 327.

Working Men's Compensation Laws and Defective Sight.—As pointed out by Shastid, in consequence of working men's compensation laws, which render employers liable for injuries to their workmen, irrespective of technical matters, it is important for the employer to know to a certainty before he grants employment that the applicant is possessed of sufficient visual power to keep him from being hurt. Visual deficiencies which would jeopardize a man at work are usually due to a diseased condition of the media or of the optic nerve, retina or chorioid. Refraction errors are less likely to endanger limb or life because the field of vision is not materially contracted, and because such errors are usually of a congenital nature so that the possessor of them has learned in a measure to compensate for them. But there can be no doubt that errors of such a degree as materially to reduce vision and thus require the eye to be brought closer to the work than is usual would entail danger by bringing the body in proximity to unprotected (but, under natural conditions, safe) parts of machinery.—W. Zentmayer in *Ann. Ophth.*

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SATURDAY, APRIL 5, 1913

SOME PHYSIOLOGIC ASPECTS OF EXERCISE

The indulgence in athletics as a mode of promoting health and physical well-being, and the rational employment of exercise as one of the devices of physical therapy, demand a thorough understanding of the physiologic phenomena and consequences attending various forms of muscular activity. It has come to be widely recognized that no person should be permitted to engage in exhausting sports or unusual physical exercises who has not a normal constitution which will insure him against possible untoward effects of extraordinary effort. A careful physical examination by a competent medical adviser has become a recognized practice in gymnasiums, sanatoriums and comparable institutions in order that those of weaker physique who may be handicapped by some bodily defect or particularly susceptible organ may not suffer damage from undue activity. When we inquire, on the other hand, what the actual physiologic consequences of exercise are, what functions are altered and how, it is not always easy to find an answer. The physiology (and pathology) of exercise is a theme which largely remains to be written. Certain facts have forced themselves on our attention in an emphatic way, and permit of broad generalization. This is true, for instance, of the general response of the heart and the changes in the circulation incident to muscular activity. The underlying causes, the regulating mechanisms, the abnormal responses—all demand critical interpretation. And this statement applies in still larger measure to other related phenomena such as the manifestations of fatigue or the escape of the organism from it.

The careful studies of Cook and Pembrey[1] of London will be welcomed in this connection. They have made many observations on the respiration, pulse and temperature of healthy men before and after exercise, for the purpose of elucidating the phenomena of muscular dyspnea, "second wind" and training. The mean composition of the alveolar air during rest was found to be 5.57 vols. per cent. of carbon dioxid and 14.89 of oxygen; directly after muscular exercise the means were 6.52 vols. per cent. of carbon dioxid and 14.33 of oxygen.

1. Cook, F., and Pembrey, M. S.: Observations on the Effects of Muscular Exercise on Man, Jour. Physiol., 1913, xlv, 429.

The respiratory quotient $\frac{CO_2}{O_2}$ is often quoted to indicate the nature of the compounds consumed in the body when energy is liberated for various physiologic functions. The figures for protein, fat or carbohydrate combustion are distinctive and can be used under appropriate conditions as an index of the character of the metabolism going on. Cook and Pembrey have pointed out that during vigorous muscular work the respiratory quotient can no longer be depended on to represent the resultant of the metabolic activities, for the rapid ventilation of the lungs in the dyspneic stage can wash carbon dioxid out of the blood without producing a corresponding increase in the absorption of oxygen. The quotient is thus raised as the result of the altered pulmonary ventilation without regard to the metabolism itself.

The ventilation of the lungs is, of course, greatly augmented by exercise, and the respirations are increased in frequency and amplitude. The influence of oxygen on these phenomena has been the subject of considerable discussion in recent years. According to the London investigators there appears to be little or no definite influence on the volume breathed and the number of respirations when the subject at rest breathes oxygen instead of air through a mask and valves. It is necessary, they state, to take precautions to prevent the influence of suggestion and also to moisten the oxygen, which otherwise would differ from the air in being dry and cool. Under such carefully guarded conditions, which indicate the tendency of incompetent observers to draw false conclusions, most men at rest cannot recognize any difference between pure oxygen and air. After exercise the postponement of distress during breathing in and out of a spirometer enabled subjects to recognize when the latter contained oxygen. The lack of oxygen as well as the accumulation of carbon dioxid may act as a stimulus to respiration, especially after active exercise; but the amount of oxygen in the alveolar air is less affected under ordinary conditions of work than is that of carbon dioxid, so that the administration of oxygen is regarded of value by Cook and Pembrey as a rule only when the conditions are pathologic.

The differences in the pulse-rate in healthy men are reported to range from 47 to 90 per minute. Directly after exercise the pulse-rate may be as high as 180 per minute. The return of the pulse to its rate during rest is of considerable importance. The influence of training comes into distinct relief in this connection. In the well-trained man there is a rapid recovery and a tendency for the rate of the pulse to fall below its original value during rest; in the untrained man the rate remains high and often irregular for some time. Irregularity of the pulse after exercise has been observed frequently. Apart from the rapid decrease in the rate, Cook and Pembrey have noticed that in some strong and well-trained men beats appear to be dropped; in untrained men the irregularity shows itself in the rate

and volume of the pulse. It appears from the studies on record that an examination of the pulse affords the readiest means of testing the influence of muscular exercise, but it is necessary to make determinations before and at various periods after the work. A rapid return of the pulse to its original frequency during rest appears to be the best indication of good accommodation and training; in well-trained men the return is so rapid that observations must be taken in successive periods of fifteen seconds, if true indications of the influence of exercise are to be obtained.

It is well known that muscular exercise increases the temperature of the body when the measurement is made in the rectum or in the stream of urine. The values obtained in the mouth are not very reliable as indications of the internal temperature of the body, for the boundaries of the mouth are thin and easily cooled by the air and by evaporation from the external skin surfaces. Time has been required for the recognition of this physiologic rise in temperature owing to the fact that the practice of observing temperature in the mouth has been and still is so wide-spread. It is stated that the internal temperature may rise to 102 F. (39 C.) in perfectly healthy men without provoking distress or discomfort if the body is lightly clad and there is no obstacle to the free evaporation of sweat. Only when the clothing is unsuitable or the muscular work is performed in a warm, moist atmosphere does discomfort manifest itself.

Cook and Pembrey maintain that the rise of internal temperature found in men well trained and in perfect health has a beneficial effect on the performance of muscular work. Persons work more efficiently when they are "warmed for their work." There are several explanations for this beneficial influence: the excitability of the respiratory and cardiac centers is increased and the blood gives up its oxygen more readily to the tissues.

Athletes are familiar with the phenomenon of "second wind," the expression popularly applied to the disappearance of the discomfort and dyspnea which frequently arise very soon after the initiation of vigorous muscular exercise. This accommodation can scarcely be due to training; for in the untrained the phenomena are often more marked than in the trained. Any vigorous and continuous muscular activity may produce the conditions. Experimental analysis has led to the conclusion that "second wind" is an adjustment of the respiratory and circulatory systems to the demands of the muscles for an adequate supply of blood. Carbon dioxid appears to be the chief factor in effecting the accommodation.

ANIMAL PARASITES IN TUMOR FORMATION

There are some who hold that non-malignant tumors may be caused by the irritation of various parasitic organisms, while others go so far as to assert that malignant tumors are the result of the direct and specific action of certain germs. Of the correctness of the latter view, however, there is no generally accepted proof; but it is an established fact that the presence of parasites in the tissues may become associated with tumors. Thus there have been observed numerous instances of the association of tuberculosis and carcinoma. Perhaps as striking an example as any of parasites associated with malignant tumors is seen in bilharziosis of the urinary bladder. The cystitis caused by *Bilharzia haematobia* is so frequently accompanied with malignant growth, mostly epithelial, that it seems as if there must be a more or less direct connection between the parasite and the cellular proliferation.

Recently Fibiger[1] described an interesting instance of this general nature which he has studied with great care. By chance he found papillomatous growths in the stomachs of three wild rats. The growths originated in the fundus, which in the rat is lined with squamous epithelium. There were no metastases. Both acute and chronic inflammatory changes were present, and epithelial strands delved downward, pushing their way into the muscularis mucosae, some even into the submucosa, where cysts and crude epithelial pearls were found. In the epithelium beneath the stratum corneum were inclusions which later proved to be animal (nematode) parasites which it was possible to reconstruct from the serial sections. Post-mortem examination of over a thousand other rats in routine laboratory work revealed no conditions similar to those just described, nor were nematodes found. Examination of sixty-one rats from a sugar refinery showed nematodes in the fundus of the stomachs of forty and in eighteen papillomatous proliferation of varying degrees was present; in nine there were well-defined tumors. These rats were known to feed on certain roaches (*Periplaneta americana*) infesting the refinery, and examination revealed trichina-like organisms in the striped muscle of the extremities and prothorax of the roaches. When normal rats were fed with roaches from this refinery, nematodes appeared in the mucosa of the fundus of almost all of the rats, and many of them developed the hyperplastic changes suggestive of early stages of tumor. Appearances interpreted as genuine tumors were found in some.

Roaches free from parasites, when fed on the eggs of this nematode and on rat feces containing such eggs, developed the muscle infection, and when fed to fresh rats readily caused the disease in the stomach, so that in from six to eight weeks the feces constantly contained eggs. Direct transmission of the ova to normal rats failed to infect, and hence it is concluded that the roach is a necessary host in the life-cycle of the parasite.

Of a total of 118 rats fed on roaches containing larvae, ninety-four showed parasites in some of that part of the alimentary tract which is lined by squamous epithe-

1. Fibiger, J.: Cancer Induced in Rats by Feeding with Parasites of Cockroaches, Berl. klin. Wchnschr., 1913, l, 289; abstr., THE JOURNAL A. M. A., March 22, 1913, p. 948.

lium. In twenty-three of these rats there were moderate hyperplastic changes accompanied by small papillomas of the mucosa. In sixteen the papillomas were well developed so that the wall of the stomach measured as much as 1 cm. in thickness and was studded with "fibro-epithelial excrescences"; in five the lumen of the fundus was entirely occluded; in three cases the papillomas were solitary and about the size of a walnut. Microscopically a hyperplasia of the upper epithelial layers was invariably present. Eosinophils and plasma cells and collections of leukocytes in the submucosa were not infrequently seen. In general it was found that the intensity of the pathologic changes varied directly with the number of included parasites. Bacteria were seldom found except in the upper epithelial layers.

Fibiger makes a special report of four cases in which the growth was infiltrative and distinctly carcinomatous. These animals had been fed on roaches containing larvae. In one of them a second tumor was found in the urinary bladder, and Fibiger believes that the latter may have been metastatic. In another rat a metastatic nodule was found in the lung, while a third rat showed metastases in regional lymph-nodes, and serial sections of the metastases failed to reveal the presence of nematodes in any of them.

The work is most interesting. That the parasites described are responsible for the proliferations in the mucous membrane of the rats seems almost beyond question. That the parasites establish themselves only in that part of the alimentary tract which is lined by squamous epithelium points to a peculiar affinity. Their action would seem to depend on the production of some substance that stimulates cells to undue proliferation. Can this substance be extracted? This and other questions await further research. A most valuable result of Fibiger's observations would seem to be that he has discovered an example of close association of an animal parasite and cellular proliferation at times becoming malignant under such conditions that it is easily susceptible of experimental study.

THE PIGMENT OF THE CORPUS LUTEUM

With the progress of biochemical research the marked analogies that exist between the processes and physiologic performances of animals and those of plants, and the comparable chemical nature of the many compounds which occur in both types of living organisms, are becoming more and more clearly recognized. The pronounced contrasts between animals and plants which were until recently described as distinguishing characteristics are now offset by the emphasis on similar features which differ in the two groups solely in their quantitative rather than their qualitative aspects. Foodstuffs and enzymes find related representatives in both kingdoms; and pigments once supposed to represent an exclusive character of vegetable forms have yielded evidence of a close structural relationship to animal color products.

The truth is that with the gradual elimination of "vitalistic" notions from biology there is no logical reason for the barriers once set up between the different examples of animate forms. A recent illustration of the little suspected identity of two products of very diverse origin has been brought to light in Professor Willstätter's laboratory in Zurich. Escher[1] has isolated in pure form the yellow pigment of the corpus luteum and subjected it to careful chemical investigation. He has revealed the complete correspondence of this long-known coloring-matter with the pigment known as carotin and already prepared from carrots and green leaves. This is likewise closely related to lycopin, a pigmentary substance of tomatoes.

Some time ago Willstätter divided yellow plant pigments into two groups on the basis of certain solubility reactions. Each of these has now found a representative in the tissues of animals. The corpus luteum pigment, just identified with the carotin of vegetables, furnishes an example of one of the groups; in the other is found the so-called lutein which characterizes the color of the yolk of the hen's egg. Here then are two different, though hitherto confused, animal coloring-matters, each corresponding to an identical or nearly related analogue in plants. Henceforth we shall be expected to speak of carotin from corpus luteum and carotin from carrots, reserving the old designation "lutein" solely for the egg-yolk pigment.

The functions and significance of these coloring matters call for renewed investigation. An oxygen-carrying activity has been suggested for them, but it is too soon to relate the compounds to the internal respiration of the tissues in which they are known to occur. The difficulties of the study of the properties of carotin and the expense and labor involved may be gathered from Escher's experience. From ten thousand cattle ovaries, weighing 146 kg. (about 322 pounds), there was isolated less than half a gram (7 grains) of purified product. Such are the limitations of exact research.

THE NATURE OF THE SO-CALLED KLAUSNER SEROREACTION

In 1908 Klausner[2] described an easily executed reaction which was observed to occur in certain blood-serums and gave promise of having a useful diagnostic bearing. He noted that when distilled water is added in certain proportions to fresh human serum a distinct flocculent precipitate separates in some instances within a period not exceeding twelve hours. This precipitation phenomenon was regularly manifested by luetic serums.

1. Escher, H. H.: Ueber den Farbstoff des Corpus Luteum. Ztschr. f. physiol. Chem., 1913, lxxxiii, 198.

2. Klausner, E.: Vorläufige Mitteilung über eine Methode der Serumdiagnostik bei Lues, Wien. klin. Wchnschr., 1908, No. 7; Ueber eine Methode der Serumdiagnostik bei Lues, ibid., No. 11; Ergebnisse mit der von mir angegebenen Präcipitationsreaktion bei Syphilis, Prag. med. Wchnschr., 1908, xxxiii, No. 46; Klinische Erfahrungen über das Präcipitationsphänomen mit destilliertem Wasser im Serum Syphilitischer, Wien. klin. Wchnschr., 1908, No. 26.

whereas it was not a usual manifestation in the serum from non-syphilitic individuals.

The incidence of the precipitation reaction thus indicated at once gave emphasis to the possibility of utilizing the phenomenon as a specific test for syphilitic infection. More extended observation soon proved, however, that the Klausner seroreaction with distilled water is shown in other diseases, notably in certain skin affections, so that its specificity for syphilis can no longer be asserted, particularly in contrast with the behavior of the Wassermann test. Nevertheless, it is interesting to learn that despite an occasional manifestation of the precipitation in other cases, the Klausner reaction is said to follow almost invariably in certain stages of the syphilitic exanthem.

Notwithstanding the problematic or negative value of the formation of a precipitate in selected instances when an empirically ascertained proportion of water is added to fresh serum, the underlying significance of the reaction calls for elucidation. From the point of view of the chemistry of the serum proteins one would anticipate that dilution with water might precipitate the globulin fraction which is less soluble as the concentration of salts diminishes. One might assume at first consideration therefore, that luetic serum and the serum of some of the other disorders are exceptionally rich in globulins and thus account for the possibility of inducing a more ready precipitation with distilled water. Klausner has lately shown that this explanation will not suffice.[3] An extended experimental study of the reaction has led him to the conclusion that lipoids are involved in the phenomenon. Every serum with which the precipitation can be demonstrated can be "inactivated" by extraction with ether or by heating. Serum inactivated by ether can be restored to a reactive state by addition of lipoids; the effect of heat cannot thus be compensated. Normal serum which does not give the Klausner test can be "activated" by addition of lipoids if it has not been heated. These and added features which need not be detailed here strongly suggest that the positive outcome of the Klausner reaction is dependent on an increased content of lipoids in the blood-serum in certain stages of syphilis and in other infections. Once more this indefinite group of ether-soluble compounds has been brought into relation to some of the phenomena of immunology.

3. Klausner, E.: Ueber das Wesen der sogenannten Klausnerschen Serumreaktion, Biochem. Ztschr., 1912, xlvii, 36.

PRESIDENT WILSON RISES TO AN EMERGENCY

The recent situation caused by floods and storms was the first emergency to confront the new federal administration, still only a month old, yet there was no delay or lack of readiness to rise to the occasion. President Wilson promptly offered the help of the entire country to the stricken communities. Tents, cots, blankets and food were ordered into the storm-swept and flooded districts, in the most expeditious manner possible. But the President did more than this. Within twenty-four hours after the development of the floods in Ohio and Indiana, he directed three steps to be taken, which, so far as we are aware, are unprecedented. They are also highly significant of the attitude of the President and the new administration toward the activities of the federal government. Yet they were taken so quietly, and so much as a matter of course, that probably nine out of ten of those who read the dispatch from Washington saw no significance in the orders which had been given.

The first was that the crews and equipments from the life-saving stations on Lake Michigan and Lake Erie were ordered to proceed at once to the flooded districts to assist in saving lives. Like all simple but unprecedented acts, the common sense of this move commends itself at once to all. Boats were lacking, and the government had them. Experienced men were needed and the government had them. The season of navigation on the lake is closed at present and there was no great need for the life-saving crews at their stations. What more natural than to use the trained men and the special equipment of the Life-Saving Service to save lives in the flooded districts?

The second was to direct the Secretaries of the Treasury and of War to send at once into the afflicted districts all of the available medical officers of the Public Health Service and of the Army. Government surgeons have been sent before to establish quarantine and to stamp out existing epidemics. But, so far as we know, this is the first time that the health officers of the federal government have been ordered into a region to prevent the breaking out of epidemics and disease. Again the quiet common sense and disregard of governmental red tape on the part of the President must win the commendation of every sensible citizen.

The third thing the President did was to order ten thousand vaccine points and a thousand ampules of anti-typhoid serum sent at once into Ohio and Indiana for use in preventing epidemics of small-pox and typhoid. He did not expect the government surgeons to go to their work without being properly equipped. They were to be given all the aid that science could give them. Modern bacteriology and sanitation have proved that small-pox, which generally breaks out following great disasters, can be prevented and stamped out by vaccination. Extensive experience in the United States Army and elsewhere has proved positively, in the last three years, that typhoid can be prevented by proper vaccination.

The nation is fortunate in having as its chief executive a man who does not fear official red tape, moss-grown precedents or the opposition of the ignorant and fanatical followers of fantastic cults, but who will calmly, fearlessly and sensibly place at the disposal of any stricken or afflicted community all the available resources of the government and of modern science for the prevention of disease and the saving of life.

DOCTORS IN TIMES OF PERIL

During the recent period of disaster and havoc ordinary events were relegated to the back pages of the newspapers. Every issue of the dailies was full of heart-rending and pathetic stories of disasters, storms and floods. The people responded to the call for help with the magnanimity and promptness which characterize the nation. From the scenes of the disaster came the call for food, clothing and shelter. But before this there came a call for physicians to minister to the wounded, the sick and the dying. From almost every afflicted locality soon came the same statement, "A special train carrying volunteer physicians, nurses, dressings and medical supplies is on the way to the scene of disaster."

So it is after every great calamity. The first men on the scene are physicians, performing their sacred work of saving life and relieving the suffering. This happens so constantly as to be an accepted occurrence. No one expresses any surprise. On the contrary, surprise would be aroused only if the nearest available physicians ever failed to respond in numbers equal to the need. Leaving their own work, volunteering without hesitation for the hardest service, they toil often for days and nights without intermission, without asking for or expecting compensation. Instances are not hard to find. Following the recent cyclone in Omaha, our correspondent writes: "I have personal knowledge of physicians whose homes were destroyed, yet the moment they knew their families were not injured they left them and worked all night, ministering to the maimed and dying." There never has been a public calamity in which the services of physicians were not instantly offered, without money and without price.

At such times what becomes of the innumerable sects and cults which, under ordinary conditions, are constantly trying to usurp the place of the scientific medical profession and undermine the confidence of the public? Apparently they sink into obscurity and silence. When the emergency arises, what have they to offer? Suppose the dispatch from Ohio last week had read: "A special train containing one hundred osteopaths is on the way to Dayton. All of the sufferers will be given spinal adjustments as soon as the train arrives." Or "It is reported that two hundred people are dead and thousands rendered homeless and in danger of their lives through exposure due to the floods in Columbus. A special train containing one hundred chiropractics is being sent to the scene at once. Those suffering from injury and exposure will be given immediate treatment for nerve impingement." Or let us even suppose that those who disdain all material methods should emerge from their state of self-absorption long enough to do something practical: "Senator Works telegraphs that he has arranged for a special train, containing one hundred Christian Science healers, to be sent to Omaha. This train has been given the right of way over all railroads. All persons injured in the cyclone and the blizzard will be given mental treatment as soon as the train arrives." No such items have appeared in any of the newspapers. They would be greeted with laughter from all over the country. The peculiarity common to all of the unscientific and irrational cults and fads is that, in times of real peril and need, they have nothing to offer. When lives are in danger and when death rides on the wind and waters, the people want the men of scientific training and experience, of cool judgment and steady nerves, who can carry to them all the aid the human intellect in its centuries of struggle has been able to discover. Fads and isms may be followed by some of our people in times of peace and safety, but they fail when real danger threatens.

COOPERATION AMONG PUBLIC HEALTH ORGANIZATIONS

The present campaign against disease and preventable death is now about two decades old. The causes, methods of transmission and means of prevention of almost all infectious diseases have been discovered within that period. During this time each state has had some form of health organization; but owing to the diversity and limitations of laws in the different states, as well as to the rapidity with which our knowledge regarding the causation and prevention of disease has developed, state and local health boards have been supplemented, in many cases, by volunteer, philanthropic bodies, interested in some special phase of the health situation. These organizations have proved important factors in the general public health campaign. Of late, however, it has been increasingly evident that with the multiplication of independent organizations there is danger of overlapping of function, interference in work, duplication of efforts and expenses, and — most important of all — lack of effective cooperation for want of a common program of procedure which would unite all organizations interested on a common platform, without interfering with the special work for which each organization was created.

After careful consideration of this problem, the Council on Health and Public Instruction of the American Medical Association, early in January, addressed a letter to the executive officers of thirty of the more important national organizations, suggesting a conference of executive officers to consider whether there is any overlapping of organizations and also whether there is, at present, any common ground for cooperation and mutual helpfulness among the organizations now in existence. This proposal was generally endorsed; and a second letter suggested that a conference be held in New York, Saturday, April 12, at the headquarters of the American Association for Labor Legislation, 131 East Twenty-Third Street, and asked for suggestions regarding other organizations interested. The bodies addressed included official and governmental organizations such as the United States Public Health Service, the Division of Vital Statistics and the Child Welfare Bureau; semipublic organizations, such as the National

Red Cross, the American Public Health Association and the Conference of State and Provincial Boards of Health; professional organizations, including the American Institute of Criminal Law and Criminology, the American School Hygiene Association, and the National Educational Association; scientific bodies such as the American Association for the Advancement of Science; philanthropic organizations of which the Russell Sage Foundation, the Rockefeller Sanitary Commission, the Elizabeth McCormick Memorial Fund and the Carnegie Institution are examples; business organizations, including the Association of Life-Insurance Presidents, as well as the Metropolitan, Prudential, Equitable, Postal and other insurance companies carrying on conservation work; special organizations, like the American Association for the Study and Prevention of Infant Mortality, the Association for the Study of the Feeble-Minded, the Association for the Study and Prevention of Tuberculosis, the National Child Labor Committee, the American Association for Labor Legislation, and the National Breeders' Association, and great national organizations interested in civic and national conservation, such as the National Conservation Congress, the American Civic Association, the National Civic Federation, the National Housing Association, and others.

The unanimity with which these organizations have responded to the suggestion for a conference plainly shows that the movement inaugurated by the Council on Health and Public Instruction is timely and necessary. The conference to be held in New York next week will be unique. About sixty organizations, all of national scope and all interested in some phase of the public health question, have intimated that they will be represented, in the majority of cases, by executive officers or by those having in their hands direct administration of the public health functions of the organization. The general subject for discussion will be: "How can better cooperation and coordination be established among the health forces of the country, so that the best results can be secured?" The discussion which will be presented on this subject cannot fail to be illuminating and valuable. In fact, it is reasonable to hope that this conference may mark a new era in our public health campaign.

Current Comment

SYSTEMATIC PREVENTION OF MINE ACCIDENTS

As the result of a conference which was held under the auspices of the United States Bureau of Mines last September, the American Mine Safety Association has been organized, with headquarters at Pittsburgh, Pa. Its members include the leading coal and metal mine operators, mining engineers and mine safety engineers of the country. Its purpose is the conservation of the life and health of the miner and a reduction in property loss due to explosions or fires in mines. It will attempt to place before the miners standard methods to be used in rescue work and in first aid to the injured. The work of the Bureau of Mines in reducing the number of deaths in the mines has led to the adoption of many different types of rescue apparatus, and also to the use of many different methods of resuscitation and first aid to the injured. Hundreds of mines within the last three or four years have been equipped with rescue apparatus, rescue corps and first-aid corps. Many of the men, in emergencies, have developed their own ways of doing things. The organizers of this association feel that the most efficient methods and apparatus in actual use should be found and recommended to the mining industry for general use. There were 2,719 persons killed in the coal-mines of the United States during the year 1911, and 9,106 seriously and 22,228 slightly injured. Nearly an equal number of men were injured in metal mines and quarries. Mine operators now realize that it is more expensive to restore wrecked mines, more costly to fight damage suits through the courts, and less profitable to pay regulated liability charges or even workmen's compensation, than it is to bear the cost involved in reducing these charges by means of diminishing the number of accidents and the duration of the resulting disability by the adoption of improved safety, rescue and first-aid methods. Fifty-eight per cent. of all industrial accidents are shown by statistics to be due to negligence, carelessness or lack of knowledge of employers or employees. The vital necessity of learning everything possible about the causes and means of preventing these accidents must be evident to every man concerned in mining. To the operator it spells business success or failure; to the miner, life or the physical ability to work and support a family.

THE "ORIGINAL ARTICLE" FRAUD—A RECRUDESCENCE

In our article[1] on "Flours and Foods for Diabetics," two weeks ago, some space was given to a discussion of the Jireh Diabetic Food Company. This is a concern which sells a dangerous and fraudulent product for diabetics under the claim that the starch in it has been so "treated" that it is not dangerous for those who suffer from diabetes. The Jireh concern has so juggled its advertising matter as to keep within the letter of the Food and Drugs Act while violating its spirit. We said in the article that the Jireh Diabetic Food Company was evidently intending to invade the medical journal advertising field. Our belief was based on the fact that the company was already advertising in the *Dietetic and Hygienic Gazette*, the *Medical Summary*, the *Medical Times* and the *Therapeutic Record*. The belief was further strengthened by the appearance of an advertisement—whether paid for or not, we do not know—in the form of an "original article" that has already appeared in the March issues of the *Southern Practitioner* and the *Medical Summary*. How many other journals will print this "article" remains to be seen. The article is entitled: "The Value of Starch-Treated Foods in the Dietotherapy of Diabetes Mellitus," by one George M. Norton, M.D., Savannah, Ga. During the past few days

1. Propaganda Department, THE JOURNAL A. M. A., March 22, 1913, p. 922.

the editors of medical journals in various parts of the country have received typewritten abstracts of the Norton "article," together with letters signed by George M. Norton stating that "it occurs" to him that should an abstract of his article appear in the various journals to whose editors he writes, it "would be appreciated by your many thousand readers, and the abstract is, therefore, respectfully submitted." The Norton letter continues: "I hope you will extend to me the courtesy of giving space to this extract in an early issue of your most excellent journal." We had fondly hoped that the "original article" method of advertising had gone out of date, thanks to the publicity this method of humbugging physicians had received from THE JOURNAL. But "eternal vigilance is the price of freedom" — from advertising fraud. Possibly the Jireh Diabetic Food Company may consider that it has very smartly "put one over" on our profession. If so, it is mistaken. The employment of methods belonging to an advertising era fortunately past will merely serve to emphasize the fact that the sale of Jireh Diabetic Foods depends on misrepresentation or deceit.

"THERE'S A REASON"

Those readers of advertisements who are of an inquiring turn of mind may have wondered wherein lay the secret of the marvelous properties that have been ascribed—by the manufacturer—to Grape-Nuts. It is admitted to be but a combination of wheat and barley, and yet we have been told that this combination is a "special food for the brain and nerves," is good for appendicitis, "loose teeth," and various other unpleasant conditions. The manufacturer has at last explained. "There's a reason." Naturally enough, he makes this explanation in the pages of scientific publications, to wit, medical journals. Thus we read in current issues of some medical journals:

> To estimate the "calorie" value of Whole Wheat and Barley would seem (in the laboratory) to be a correct computation of the dietetic value of the well-known food (made of these two cereals)—Grape Nuts.
>
> But, professional accuracy of observation from a clinical standpoint, and confirmed, in an empirical way by many of the more intelligent laity, has shown in many individual cases during a decade or more, that Grape Nuts, for some reason possibly not readily demonstrable by the mathematics of chemistry, supplies in a prompt and practical way far more *real nutritive value* than the laboratory chart gives to mere Wheat and Barley.

After thus destroying the idols of science, the iconoclastic advertisement writer naively remarks: "The above is well worth looking into. . . ." Yes, indeed. So also are the conservation of energy and the immutability of the elements and the indestructibility of matter and Newton's law of gravitation and a few other fundamentals that scientific men fondly imagine to be fairly well-demonstrated scientific facts. It would seem to be the apotheosis of advertising misrepresentation when it becomes necessary for the exploiter of a breakfast-food to try to convince physicians that $2 + 2 = 5$. Why medical journals should be willing to "fall for" this sort of pseudoscientific twaddle we do not know; but, doubtless, "There's a reason."

ONE CENT A DAY FOR HEALTH

Every one has been interested in the wonderful work being done in Panama in the construction of the canal. Startling as have been the results of the work of the engineers and builders, the work of the Sanitary Department has been even more wonderful. In a region noted as the most unhealthful in the world, in which our predecessors, the French, were unable to succeed because they could not keep the workers alive, American Army surgeons, by the use of scientific facts known to all, have succeeded in lowering the death-rate among American residents far below that of our most favored American communities. According to Colonel Gorgas, the chief sanitary officer of the Canal Zone, the death-rate for 1911 among 10,489 Americans was only 4.48 per thousand. While this result has been mainly due to the control of yellow fever and malaria, and while it is true that the American population consisted of picked individuals, largely of educated men and women in the prime of life, yet even with all these conditions recognized, the record is a remarkable one, and is probably without a rival. And all this, says Colonel Gorgas, has been accomplished at an expense averaging one cent per day for each individual. If this result can be secured at this cost in the center of a tropical jungle, what would not a similar expenditure do for our American cities? One cent a day is what the average American pays for a daily newspaper. It is one-fifth the cost of one five-cent cigar. It is one-fifth the price of a daily street-car ride. It is one-fifth the cost of admission to a moving-picture show. It is one-fifth of what we pay for a glass of soda-water or a package of chewing-gum. Who would say that the expenditure of this amount would be any burden to this rich and extravagant nation? And yet it is the cost of life itself. Is one cent a day too much to pay to protect the life and health of an American citizen?

MUNICIPAL CHARITIES OF PHILADELPHIA

We have received the "Report of the Committee on Municipal Charities of Philadelphia," a book of 150 pages. The committee consisted of representative physicians and citizens of Philadelphia appointed by Mayor Blankenburg, and the report is a record of, and a protest against, the manner in which the public institutions and charities of a great city have been organized, provided for and managed. One receives the impression that better terms to denote the conditions would be "unorganized," "unprovided for" and "mismanaged," though all these terms represent shortcomings of the city government rather than of the officials of particular institutions. Politics and pull seem to be writ large over the whole situation, and lack of classification and separate provision for the different classes of the city's wards, or lack of cooperation and coordination in the work of the various institutions already established, is the crying fault. For instance, in Blockley, the largest municipal hospital and almshouse, an attempt is made to take care of all sorts of patients, from the infant with summer-complaint to violently insane adults, and the overcrowding is such that five thousand patients are housed on about five acres of ground. The committee

has been making a thorough study of the situation, and recommendations are made by the different subcommittees for the temporary and permanent improvement of conditions. The outspoken manner in which conditions are described and pictured and the blunders and mistakes of judgment of former administrations pointed out is refreshing in a public document. Many of the criticisms would undoubtedly apply with equal force to the management of public charities in every city in the land.

PROTECTION AGAINST THE DEADLY BICHLORID

The dangers in the indiscriminate sale and use of mercuric chlorid (corrosive sublimate) tablets have been shown, or referred to, many times in THE JOURNAL. Attention has also been called to the dangers of popularizing these tablets by selling them under catchy or inferentially misleading names, such as "Clover Antiseptic Tablets." Each of these innocently named tablets contain seven and one-half grains of mercuric chlorid. The *Practical Druggist* discusses the same problem and refers to the provisions that are made in some more paternalistic countries for the protection of the public. The mercuric chlorid pastilles of the German Pharmacopeia consist of equal parts of mercuric chlorid and sodium chlorid. That pharmacopeia declares that the pastilles must be colored bright red with anilin dye, have a cylindrical shape and be twice as long as thick. Further, in display type, the proviso is made that "bichlorid tablets must be dispensed in glass bottles and must be labeled 'poison.'" Each tablet must be wrapped in black paper, each paper must contain in white letters the word "poison," and the weight of mercuric chlorid must be stated. Besides giving directions to protect them from light and moisture it is specified that they should be kept under lock and key. The German Pharmacopeia is a government-owned pharmacopeia, and the protection it gives the public in this specific instance is a good argument for the governmental control of such publications. Theoretically, the United States Pharmacopeia should be a work potent for much good; but unfortunately its preparation—at least in recent years—has been dominated by the commercial pharmaceutical interests to such an extent that neither the interests nor the wishes of the public or the medical profession have received much consideration. The *Practical Druggist* suggests editorially that each state should adopt stringent laws to regulate the sale of bichlorid tablets; but it would seem much simpler and more effective if steps could be taken to insure in future revisions of the Pharmacopeia greater efforts for conserving the health and welfare of the public.

The Future of Preventive Medicine.—Preventive medicine is capable, in the future, of doing away with poverty and misery, of remedying industrial disputes and of contributing to the cause of international peace. . . . It is capable of removing those causes of human misery, poverty and sorrow which lead to internal rebellion and disorder and, among nations, to war and strife. . . . We are going to get, through preventive medicine, relief from the frictions which arise out of immigration among the leading nations of the world.—Charles W. Eliot.

Medical News

ARKANSAS

State Society Meeting.—The annual meeting of the Arkansas Society will be held in Little Rock, May 20-23.

State Board Election.—At the annual meeting of the State Board of Health held in Little Rock, March 20, Dr. Morgan Smith, Little Rock, was elected secretary.

Society Meets in New Quarters.—The Pulaski County Medical Society held its February meeting in the new quarters tendered it by the Little Rock Public Library. The library has also arranged to house the medical library left by the will of Dr. W. E. Green to the society.

District Society Election.—At the annual meeting of the Tenth Councilor District Society, which includes the seven northwestern counties of the state, held in Rogers, March 18, Dr. J. L. Smiley, Siloam Springs, was elected president and Dr. J. A. Fergus, Rogers, secretary.

CALIFORNIA

Wiley in Los Angeles.—Dr. Harvey W. Wiley lectured at the Temple Auditorium, Los Angeles, March 28, on "Public Health, Our Greatest National Asset."

State Society Meeting.—The annual meeting of the Medical Society of the State of California will be held in Oakland, April 15-17. One of the features of the entertainment to be provided will be an automobile trip through Oakland and adjoining cities.

Sanatorium News.—The tuberculosis sanatorium erected by the Independent Order of Foresters of Lopez Canon, near Mulholland, was dedicated with appropriate ceremonies, March 15. The sanatorium will accommodate forty patients, is erected on the cottage plan and the buildings are arranged in a semicircle.——Mrs. Hattie M. Holmes, Watsonville, is making arrangements for the construction of a building in Patterson to be used as a general hospital and to cost about $3,500.

COLORADO

Free Antityphoid Vaccination.—The health commissioner of Denver announces that he is prepared to give free antityphoid inoculation to all applicants.

Tuberculosis Communicable.—The state legislature has declared tuberculosis to be a communicable disease and requires that reports of cases of tuberculosis be made by the attending physician to the local board of health.

Tuberculosis Hospital for Denver.—The Board of Charities and Corrections of Denver has planned a city tuberculosis hospital to cost about $15,000, to take the place of the old tuberculosis ward at the Denver City and County Hospital.

New Officers.—Fremont County Medical Society at Florence: president, Dr. V. A. Hutton, Florence; secretary, Dr. W. T. Little, Canon City.——Northeast Colorado Medical Society in Sterling: president, Dr. Cook, Julesburg; secretary-treasurer, Dr. Barney, Sterling.

State Board Appointments.—The governor has nominated Dr. L. G. Crosby, Ouray, Mr. A. W. Scott, a druggist of Fort Collins, and Mr. H. J. Merriweather a sanitary engineer of Denver, as members of the Board of Health to succeed Drs. C. S. Morrison, Colorado City, and W. C. K. Berlin and James Rae Arneill, both of Denver.

CONNECTICUT

Alumni Election.—At the semiannual meeting of the St. Francis Hospital Alumni Association, Hartford, Dr. Joseph P. Ryan, Hartford, was elected president; Dr James Rooney, Hartford, vice-president; Dr. George W. Dunn, New Britain, secretary, and Dr. Thomas Herr, Waterbury, treasurer.

Sanatorium to be Enlarged.—An appropriation of $30,000 for new buildings at the Hartford County Tuberculosis Sanatorium was passed by the legislature. This will increase the capacity of the institution from forty-three to seventy-five and will permit of the erection of some rooms, a cottage for servants, a cottage for the superintendent and a dining-room for nurses.

ILLINOIS

Sanatorium for La Salle County.—The board of supervisors of La Salle County have adopted plans for a tuberculosis sanatorium to be erected at the county farm to accommodate ten patients and to cost not more than $2,400.

Personal.—Dr. Wilbur W. McCleary, Chicago, who was operated on for inguinal hernia at St. Bernard's Hospital, March 19, is reported to be convalescent.——Dr. and Mrs. O. D. Holland, Streator, have returned from Europe.

Home for Epileptics Endorsed.—Members of the Evanston Woman's Club have approved the plan urged by Illinois club women to erect a home for epileptics. It is suggested that the building be erected in a white pine grove, near Galena.

Memorial to Indianapolis Physician.—The Woman's Medical Club of Chicago gave a professional tea as a memorial benefit to Dr. Helene Knabe, at the Hotel La Salle, March 29, at which Dr. Lillian Crockett-Lowder, Indianapolis, was the guest of honor.

Ask for Woman Physician on Board of Education.—The Chicago Woman's Club, at the suggestion of the Woman's City Club, has sent a resolution to the mayor asking the appointment of another woman on the board of education, and urging that a woman physician be appointed.

Physicians Acquitted.—In the case in which action for damages of $10,000 was brought against Drs. Charles E. Hill and Ato C. Housh, East St. Louis, on account of the death of a boy under chloroform anesthesia while being operated on for phymosis, a verdict has been rendered in favor of the defendants. It was shown in the trial that chloroform is recognized as the anesthetic of choice in children, and that deaths during any operation, no matter how simple, are a part of the risk which the patient must assume, if ordinary care and skill be given.

The New Cook County Hospital.—The Cook County board has appointed a committee consisting of Drs. William L. Baum, Henry B. Favill, John A. Hornsby, A. J. Ochsner and Mr. L. R. Curtis, superintendent of St. Luke's Hospital, Chicago, to investigate the plans for the new Cook County Hospital and suggest changes. Changes were suggested by the committee which consist of the elimination of unnecessary fixtures and the addition of facilities for more patients, these changes effecting a decrease in cost of half a million dollars. The committee objected to the use of 20 per cent. of the total space in the building for the housing of interns and other employees.

KENTUCKY

Fresh Air School Opens.—The first open-air school in Kentucky for tuberculous children was opened in Lexington on the roof of the new Lincoln school building, March 17.

Hospital Notes.—The Winchester City Hospital committee has purchased a site for its proposed hospital for $3,000.——At Henderson, arrangements are being made for the purchase of the old high school building for $3,000 to be used as the city hospital and the present hospital is to be fitted up for tuberculosis patients.

Personal.—Dr. Arthur T. McCormack, Bowling Green, is in Rochester, Minn., where he took Mrs. McCormack for an operation from which she is slowly recovering.——Dr. Henry C. Kehoe, Flemingsburg, has been appointed superintendent of the State Institute for the Feeble-Minded, vice Dr. G. W. Armes, Frankfort, resigned.

MARYLAND

Expense of Small-Pox Epidemic.—The total expense of the recent small-pox epidemic in Allegany County is said to have been $8,000.

To Celebrate Sixtieth Anniversary.—The trustees of the Sheppard and Enoch Pratt Hospital, Towson, are planning to celebrate the sixtieth anniversary of the granting of the charter for the institution. It is expected that the celebration will be held either just before or just after the meeting of the Congress of American Physicians in Washington. The hospital was incorporated in 1853, Moses Sheppard the founder, being the first president of the board of trustees, but the institution has been receiving patients for only twenty-one years.

Baltimore

Personal.—Dr. Henry Barton Jacobs has been reelected president of the Society of Colonial Wars.——Dr. Andrew C. Gillis, superintendent of Mercy Hospital, has resigned and will leave Baltimore for Germany, April 9.

Royal Society Honors Physicians.—Drs. William H. Welch and Dr. Eugene F. Cordell, Baltimore, and Col. William D. McCaw, M. C., U. S. A., librarian of the Surgeon-General's Library, Washington, have been elected honorary members of the Royal Society of Medicine, London, in the Section of History of Medicine.

MINNESOTA

Inebriate Farm Saved.—The legislature at its session, March 26, voted down by a vote of 48 to 24, the W. T. Stone bill which sought to abolish the State Inebriate Farm, Willmar, and convert it into a state sanatorium for tuberculosis.

Leprosy Suspect.—A case has recently been reported to the health department of Minneapolis by Dr. Th. Thoresen, who declares the ailment leprosy and its diagnosis is concurred in by Dr. J. Hvoslef. The attending physician, however, does not agree with this diagnosis and a conference of physicians is to be called to decide the matter.——The City Health Commissioner, on March 20, concurred in the diagnosis of leprosy, and expressed his belief that the case is less a menace to public health than is a case of tuberculosis.

NEBRASKA

The Cyclone in Omaha.—In the path of the recent cyclone in Omaha were the houses of Drs. D. C. Bryant, J. C. Bishop, Howard B. Hamilton, C. T. Needham and H. L. Arnold. These houses were wholly destroyed. The houses of many other physicians were damaged by the cyclone, but no fire occurred in the house of any physician nor was a member of a physician's family seriously hurt. One or two physicians received minor injuries. In no case were the doctors deterred from active service in aiding the injured. Physicians, nurses and hospitals worked in concord for relief of the suffering, irrespective of financial or social standing.——The medical section of the University of Nebraska which has its building at Forty-Second and Harney Streets, Omaha, directly in the path of the recent cyclone, escaped with damages estimated not to exceed $1,000. The building was badly rocked, water, sewer and gas pipes and many windows were broken.

NEW YORK

Library Open to All Physicians.—A circular letter has been sent to all physicians of Buffalo inviting them to use the University of Buffalo Library which contains about 9,000 medical volumes and receive regularly about 130 English and foreign medical periodicals.

Senate Confirms Nominations.—The senate has confirmed Governor Sulzer's reappointment of William Rhinelander Stewart, Dr. Stephen Smith and Hermann Ridder of New York as members of the State Board of Charities. The appointment of Dr. J. Richard Kevin of Brooklyn as a member of the State Board of Charities was also confirmed.

Personal.—Dr. F. M. Meader, city bacteriologist of Syracuse, has been given an indefinite leave of absence that he may undertake studies in preventive medicine.——Dr. F. W. Lister has been elected president of the Seneca Falls Antituberculosis Society and Dr. Robert Knight, treasurer.——Dr. George H. Fox has been appointed assistant physician and Dr. S. B. Blakely assistant surgeon of the Binghamton City Hospital.

New York City

Campaign for Hospital.—On April 2 a campaign was inaugurated to raise $160,000 to equip the new St. Anthony's Hospital, Brooklyn.

New Clinical Building.—Plans have been filed for a six-story building to be known as the Hospital of Deformities and Joint Diseases, to be erected at a cost of $90,000 on One Hundred and Twenty-Eighth Street near Madison Avenue.

Personal.—Dr. G. K. W. Schenck has been elected president and Drs. F. P. Hatfield, A. Goldberg and E. L. Friedman, members of the medical board of Rockaway Beach Hospital.——Dr. Edward Carter Perkins at the completion of his service in St. Luke's Hospital will start for Kukiang, China, where he has purchased a site and has arranged for the erection and maintenance of a hospital.

To Kill the Mosquito.—Health Commissioner Lederle recently appeared before the finance committee of the board of aldermen and asked for an issue of special revenue bonds of $66,400 with which to fight the mosquito in all the boroughs of the Greater City. Brooklyn citizens have agreed to raise $25,000 toward the campaign provided New York will contribute a like sum. The committee will hold a public hearing before acting on the request.

Health Department Destroys Much Food.—According to the figures given out by the health commissioner, the nineteen food inspectors of the Department of Health condemned and destroyed 23,950,321 pounds of foodstuffs during the year 1912. In commenting on this loss of food Dr. Lederle points

out that it is a factor in the high cost of living and recommends a central board of control which would regulate the quantity of material to be shipped to any one city at a given time. He also points out that the prohibition against the sale of skimmed milk and butterine is economically absurd and unscientific.

Protests Against Report of Venereal Diseases.—The Medical Society of the Borough of the Bronx at its meeting February 12 entered a protest against the recent order of the Health Department to certain hospitals in the city requiring these institutions to record with the department, the names and addresses of all persons suffering from venereal diseases, and if possible the names and addresses of all persons supposed to be sources of infection. The reasons assigned are: that venereal diseases are regarded as a reproach and stigma and knowledge of such cases is confidential and privileged; that the continued reporting of such cases in this way will cause blackmail and divorce suits; that statistics will not be improved; that all diagnoses in such cases are not correct; and furthermore, the society believes that prevention will not result from this order, for the poor man will either go untreated or treat himself, or will fall into the hands of the advertising quack and will carry on the deadly work of communicating to others his disease.

PENNSYLVANIA

Hospital Addition Needed.—Although the addition to the Miners' Hospital, Spangler, was opened in February, the institution is already overcrowded and plans have been set on foot for the building of a new extension.

Philadelphia

New Officers.—Jefferson Hospital Clinical Society, March 2: president, Dr. Francis T. Stewart; secretary, Dr. Elmer H. Funk.

Personal.—Dr. L. C. Peter has been elected ophthalmologist to the Rush Hospital for Consumption and Allied Diseases, vice Dr. Wendell Reber, resigned.——Dr. Edward A. Spitzka, director of the Baugh Institute of Anatomy, is suffering from a general nervous breakdown and has gone abroad to recuperate.

Alumni Dinner.—The annual meeting and dinner of the Society of the Alumni of the Medical Department of the University of Pennsylvania will be held in the Bellevue-Stratford, April 18. Among the speakers are Drs. S. Weir Mitchell, Richard C. Cabot, Boston, Lewis H. Taylor, Wilkes-Barre and John G. Clark. Dr. William Pepper will act as toastmaster.

Suggests College Merger.—Dr. Henry W. Cattell in a public letter, proposes to bring the University of Pennsylvania under the direct control of the state legislature and of the councils of the first and second-class cities and to devote an annual appropriation for administration purposes; to compel the union of certain medical schools and hospitals by not granting state aid to them unless they merge within a specified time; to cause the managers of hospitals under private management and receiving state aid, to keep their books so as to permit the auditing committee to pay over the per capita allowance for the care of each poor patient treated, and to forbid, with penalty of fine, the receipt of medical attention from hospitals receiving state aid, by those able to pay for such services.

WISCONSIN

Contracts Awarded.—The Racine Board of Health has awarded the contract for the municipal isolation hospital at Gatliff for $39,055.——The Eau Claire County Sanatorium Tuberculosis Committee has awarded the contract for the construction of the building for $15,075.

Personal.—Dr. Herbert W. Powers, formerly of the Kenilworth (Ill.) Sanitarium, has been appointed senior physician at the Milwaukee Sanatorium, Wauwatosa.——Dr. E. C. Grosskopf, Milwaukee, has been appointed a member of the board of trustees of the Milwaukee Hospital for the Insane.——Dr. Alfred H. C. Carthaus, surgeon at the Milwaukee Soldiers' Home, has been transferred to the Soldiers' Home at Togus, Maine.——Dr. George H. Scheer, Sheboygan, has been commissioned first lieutenant, M. C., N. G., Wis.——Dr. Sara Elliott, Waukesha, has gone South on account of ill health.——Dr. A. P. Andrus, Ashland, a member of the police and fire commission, has resigned to accept the position of health commissioner.——Dr. John M. Kelley, Cato, has been appointed attending physician at the Manatowoc County Tuberculosis Sanatorium, Whitelaw.——Major E. H. Gramis, M. C., N. G., Wis., has been appointed surgeon-general.

WYOMING

Nurses' Home at Sheridan.—A bill appropriating $15,000 for a nurses' home at Sheridan has been passed by the legislature and approved by the governor.

State Board Organized.—The State Board of Medical Examiners met for organization at Cheyenne, March 7, and elected Dr. C. D. Stafford, Kemmerer, president; Dr. J. G. Cogswell, Riverton, vice-president, and Dr. John B. Tyrrell, Laramie, secretary and executive officer.

GENERAL

Antimalaria Congress.—The first antimalaria congress is to be held in St. Louis, April 10-12. It will convene as a section of the International Drainage Congress.

Surgeons Meet in New Orleans.—The Society of Clinical Surgery held its twentieth annual meeting in New Orleans, March 21-22. At the clinic held by Dr. Rudolph Matas, at the Charity Hospital, his treatment of neuralgia by the injection of alcohol under the nerve ganglions at the base of the skull, was presented and demonstrated. Clinics were held at the various hospitals of the city and at the close of the meeting a luncheon was given by Dr. Matas and the local surgeons' committee of the society at the Boston Club. The society was also entertained at luncheon by the medical staff of Tulane University.

Bequests and Donations.—The following bequests and donations have been announced:

New York University and Bellevue Hospital Dispensary, $25,000 for the endowment fund by the will of Maria G. Taylor.

Methodist Hospital, Philadelphia, and St. Luke's Hospital, South Bethlehem, Pa., each $21,000 by the will of John Fritz of Bethlehem.

Southside Hospital, Pittsburgh, a large sum by the will of Martha Schweitzer.

Abington (Pa.) General Hospital, $22,200 subscribed by pledge to the building fund.

Syracuse (N. Y.) Hospital for Women, $10,000, by the will of Maud D. Smith to endow a room in memory of her parents.

Reading (Pa.) Hospital, $10,000 by the will of James H. Sternberg.

St. Luke's Hospital, contingent trust funds of $125,000 and $30,000; Cromans Hospital, New York City, $25,000 by the will of S. F. Thompson.

University of Pennsylvania Hospital, General Hospital and Jefferson Medical Hospital, each $50,000 for hospital beds.

Pennsylvania Asylum for Indigent Widows and Single Women, $10,000; Pennsylvania Institute for the Deaf and Dumb, $10,000 and Hospital of the Protestant Episcopal Church, $10,000 by the will of Anne H. Carver.

National Jewish Hospital for Consumptives, Denver, $50,000 by Samuel Grabfelder, Philadelphia.

Lowell (Mass.) General Hospital, $100,000 for the erection of a hospital for the Care of Incurable Patients to be known as the Freeman Ballard Shedd Memorial Hospital, by the will of Freeman Ballard Shedd.

Robert W. Long Memorial Hospital, Indianapolis, an additional gift of $25,000 for completion and furnishing, by Dr. Robert W. Long.

The Flood Situation.—On March 27 the Secretary of the Treasury directed Surgeon-General Rupert Blue, U. S. P. H. Service, to visit the flooded districts in Ohio, to represent the department in sanitary matters, and he is now in Cincinnati accompanied by Assistant Surgeon-General William Colby Rucker. On March 26 Surgeon-General Blue ordered Surgeon Clarence W. Wille from Cleveland to Columbus, Ohio, to assist the health authorities in the flooded district and on the same day, Surgeon Julius O. Cobb and two assistants were ordered to Indianapolis for duty. He left on the morning of March 27, accompanied by Passed Assistant Surgeon Hugh de Valin and Dr. Carl Michel, intern in the Marine Hospital. Surgeon Leslie L. Lumsden is held awaiting orders at Roanoke, Va., in readiness for duty, wherever his services are needed. It is understood that the relief measures in Dayton and other Ohio cities are being handled by the War Department and the American National Red Cross, whose officers and assistants stationed at ports on the Ohio and Mississippi rivers are prepared to cope with all emergencies. Other officers are available for duty on short notice if occasion arises. The marine hospitals at Louisville, Evansville, Cairo, Memphis and New Orleans are available to care for the sick. The flood situation in southern Illinois on March 30 was so menacing that Governor Dunne ordered two companies of the National Guard and a ship's crew of the Naval Reserve to Shawneetown, and on the following day ordered the Seventh Infantry and the Chicago Division of the Naval Reserve to proceed to Cairo. Maj. Thomas J. Sullivan, M. C., accompanied the Seventh Infantry and on arrival at once installed Darnall filters for the use of the men. Assistant Surgeon Charles A. Costello accompanied the Naval

Reserve. Considering the devastation caused by the floods, the destruction of systems of water supply, the contamination of water by sewage and the exposure there has been, there is very little disease in the flooded districts, but all precautions are being taken to prevent or limit typhoid and other communicable diseases. The subject is also taken up editorially in this issue.

Report of Public Health Service.—The annual report of the United States Public Health Service for the fiscal year 1912 summarizes its various activities. After noting the death of Surgeon-General Wyman and the appointment of Surgeon-General Blue, the report states that the corps of commissioned medical officers now numbers 138, and that there are 227 acting-assistant surgeons, 968 attendants and nurses and 123 pharmacists, pilots, engineers and other employees, making a total of 1,456. The total expenditures of the service for the year amounted to $1,226,811.88. During the year the title of the Service was changed from Public Health and Marine-Hospital Service to Public Health Service; the salaries of commissioned officers were increased to rates commensurate with those of the officers of the Army and Navy Medical Corps and the duties and functions of the service were largely increased, empowering it to "study and investigate the diseases of man and conditions influencing propagation and spread thereof, including sanitation and sewage, and the pollution, either directly or indirectly of the navigable streams and lakes of the United States." During the year 381,772 copies of various reports and bulletins were distributed containing information regarding the prevalence of preventable diseases, with copies of regulations for safeguarding public health and other pertinent information. In addition to the investigations constantly being carried on in the Hygienic Laboratory at Washington, extensive field studies were made of typhoid fever in Texas, Arkansas, Iowa, Nebraska, Virginia and Alabama; of septic sore throat in Baltimore; of trachoma in Kentucky and Wisconsin, and of many other epidemic diseases. Surveys were also made of the Missouri watershed and of the Great Lakes; epidemiologic studies of various outbreaks of poliomyelitis, meningitis, etc., were continued and researches into the etiology and the control of typhus fever, measles, Rocky Mountain spotted fever, pellagra and the prevention and eradication of hookworm disease, trachoma, cholera and other infections were made. Supervision was also maintained over the manufacture of viruses, serums, toxins and vaccins. At the leprosy investigation station, Molokai, T. H., lines of experimentation have been followed in two directions, one consisting of studies in the vaccine and serum therapy of the disease, and the other the determination of the rôle played by lice, bedbugs and fleas in its transmission. Epidemiologic studies are in progress to determine the success of segregation, and the nature of the association necessary for the spread of leprosy. An acid-fast bacillus, differing from the human lepra bacillus, has been grown at the station from cases of rat leprosy. The Hygienic Laboratory gave special aid, during the year, to the revision committee of the pharmacopeia and standard methods were prepared for the determination of boiling and melting points and solubilities. Antirabic virus was administered to 84 persons, 1,106 treatments were sent out and the heads of 94 animals were examined for rabies, with 49 positive results. The establishment of a branch laboratory at New York for the study of contagious and infectious diseases is recommended. During the year, 12,911 vessels were inspected at domestic and insular quarantine stations and foreign ports. Of these, 1,419 were fumigated or disinfected and 1,564,071 persons were inspected. The steamer *Bratton* was placed in commission during the year, equipped with the Harker fumigation apparatus for the destruction of rats. The apparatus utilizes the flue gases from furnaces and boilers for deratization. A new quarantine station has been provided at Galveston and the quarantine function at Providence, R. I., has been transferred to the national control. After an absence of six years, plague has reappeared in the Philippines. Infection was probably introduced by means of fleas on sick rats. A severe epidemic of measles also occurred in the Philippines, the infection being traceable to patients from the United States. The disease was of a severe type and caused 23 deaths out of 524 cases. Officers of the service made during the year examinations of 1,143,234 immigrants at 83 stations and of these 27,021 were certified for physical or mental defects. Throughout the year, the service operated 23 marine hospitals and maintained 125 additional relief stations where hospital and dispensary care were furnished to American merchant seamen. In these hospitals and dispensaries, 51,078 seamen received treatment and of these, 14,717 were hospital patients. There were also made 10,264 physical examinations of masters, mates and pilots, and for entrance and promotion into the various government services. The tuberculosis sanatorium of the service at Fort Stanton, N. Mex., admitted 176 patients, discharged 178 and had a mortality of 56. Of the 178 patients discharged, 20 appeared to be cured; in 57 the disease was arrested; 25 improved; 15 were discharged unimproved; 55 died; 2 were found not to have pulmonary tuberculosis, and 4 patients were readmitted. The total cost of maintenance was $115,900.29, making, with the reduction due to sale of by-products, a cost per patient per day of $1.5554. The surgeon-general requests an increase in the number of officers in the field service to meet the constant increase in demands for aid and for the enforcement of federal quarantine laws. Ample appropriations are also required to carry out the provisions of the law regarding the investigation of problems bearing on the pollution of streams, sewage disposal and pure water supply. He also asks that provision be made for the study of pellagra, Rocky Mountain spotted fever and malaria, and emphasizes the need of a new, large, modern building for the Hygienic Laboratory.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, March 22, 1913.

Improper Use of a Medical Certificate by a Nostrum Vender

A nostrum vender in this country hit on a new device for humbugging the public which landed him in the law courts. An action was brought by Dr. Arthur Latham, a well-known authority on tuberculosis, against Stevens & Co., the venders of a "cure" for consumption, to restrain them from using a medical certificate relating to one A. G. Hodgson, or from representing that Dr. Latham had expressed any approval of their alleged "cure."

The certificate was obtained by a trick. Hodgson wrote to Dr. Latham stating that for some time he had had a bad cough; that a physician had considered him consumptive and treated him for consumption, and that consequently he was shunned by his friends and business acquaintances; that the cough had left him for twelve months, but that his friends still held aloof, and that he thought that if Dr. Latham examined him and gave him a certificate to show his friends it would be useful. Dr. Latham accordingly examined him and gave him a signed certificate to the following effect:

> I have recently examined Mr. A. G. Hodgson and come to the conclusion that he is not now suffering from consumption and is therefore not a source of danger to other people. In order to make quite certain I had his expectoration examined on two occasions and found tubercle bacilli absent. I therefore have no hesitation in saying that Mr. Hodgson cannot infect other people.

In his examination of the man's lungs, Dr. Latham found slight evidence of fibrosis, probably due to healed tuberculosis. The certificate with Dr. Latham's signature was subsequently published by Stevens & Co. in their advertisements of their "cure" for consumption, the suggestion being that they had cured Hodgson. Of course the object was to give the public the impression that the treatment was countenanced by an eminent specialist. It was admitted that Stevens & Co. paid the fees for the examination of Hodgson and for the certificate. They asserted that they cured Hodgson and denied that the advertisement conveyed the suggestion that Dr. Latham certified Hodgson's condition as being the result of their treatment. Their intention was merely to show that Hodgson was free from consumption at the date when he was seen by the plaintiff. They submitted to the injunction, however, and were ordered by the judge to pay the costs. It may be remembered that in consequence of the attack made on Stevens & Co. in "Secret Remedies" the firm brought an action against the British Medical Association, and that the jury could not agree to a verdict (THE JOURNAL, Dec. 14, 1912, p. 2166).

A Campaign Against Flies

A national campaign against flies, which will be begun during National Health Week, April 6 to April 12, is being organized, and it is estimated that five million people will take part in it. From eighty thousand to a million volunteer workers will distribute literature showing the evils wrought by the house-fly. The object is to exterminate the fly, chiefly by the removal and destruction of the garbage on which it feeds.

Bequest to the Liverpool School of Tropical Medicine by Sir Alfred Jones

During his life Sir Alfred Jones, a Liverpool ship-owner, was the main supporter of the Liverpool School of Tropical Med-

icine, to which he made princely donations. He paid the expense of the large number of expeditions to tropical lands for the investigation of disease on the spot which have from time to time been described in THE JOURNAL, and placed his ships freely at the disposal of the school. By his will he has left the school a bequest of $400,000. The effect will be to give a tremendous impetus to the development of the school and will enable its work to be carried on unhampered for some years. At present the school suffers from the inconvenience that its laboratories at the Liverpool University are situated two miles from the Royal Southern Hospital, where the cases of tropical disease are treated. Owing to the discovery of new diseases and the necessity for the closest personal inspection, the needs of the school have outgrown its bounds. The present munificent bequest will enable wards, laboratories and a museum to be erected near the university, the headquarters of the school. The work of the school is world-wide, and almost covers all recent progress in tropical medicine. Four chairs have been established in the university—tropical medicine, entomology, parasitology and tropical sanitation. The chair of parasitology is at present vacant; the others are held by Newstead, Stevens and Sir Ronald Ross. An expedition of the school is now returning from the investigation of vomiting-sickness in Jamaica. On its return it will be sent to Africa to investigate yellow fever.

Impersonation of a Dead Physician

A man named Harry Virtue has been sentenced to nine months' imprisonment for giving false death-certificates. Only a registered physician is entitled to give a death-certificate, and when he does so he has to declare that he is such. On the other hand, any one can practice medicine provided he does not represent himself to be a qualified physician. In the present case the prisoner was acquainted with the late Richard Henry Barber, L.R.C.P., who was drowned accidentally in 1904 at Portland, Ore. The General Medical Council (which keeps the Medical Register), was not aware of his death, and in 1906 and at subsequent dates received requests from the prisoner for changing Dr. Barber's address to Liverpool and other places. The prisoner was born at Manchester, and after working as a grocer and butcher went to the United States, where he appears to have studied veterinary surgery.

Failure of Action for Negligence Against a Well-Known Surgeon

An action for negligence was brought against Charles Leedham-Green, the well-known Birmingham surgeon, under the following circumstances: He removed a wart from a woman's thumb. After the operation the thumb became gangrenous and had to be amputated. It was alleged that the gangrene was due to the driving of blood from the arm by bandages and the excessive use of the freezing-mixture. Leedham-Green denied that rubber bandages were applied to the patient's arm and said that the freezing-mixture was applied only for a few seconds in order to deaden the prick of the needle used in injecting the anesthetic. He found later that the patient suffered from a bad circulation in the extremities. Medical evidence was given to the effect that the treatment was proper, and the jury gave a verdict for the defendant.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, March 14, 1913.

The Physiologic Value of the Vegetarian Diet

Dr. E. Gley, professor of physiology at the Collège de France, recently delivered under the auspices of the Société scientifique d'hygiène alimentaire et d'alimentation rationnelle de l'homme an interesting lecture on vegetarianism considered from the point of view of present-day ideas on the rôle of digestion.

Physiologically it seems clear that a vegetarian diet easily furnishes all the necessary food-elements—water, mineral salts in the desired proportion, carbohydrates, the fats and proteins. It has, moreover, three great advantages which are recognized even by one of its opponents, W. Caspari: It is poor in elements giving rise to uric acid, which is an important factor in view of the prevalence of arthritis; it facilitates the disuse and still more the non-abuse of alcohol, because those who use a vegetarian diet are almost never thirsty, the water in their food supplying the organism's need for water, and because these foods do not excite thirst as do the condiments with which meats are often accompanied; and finally it is cheap.

On the other hand, according to the same authority, it appears to present three disadvantages: that of being non-stimulating, that of presenting too great a volume, being cumbrous for the digestive tube and that of not being rich enough in proteins. According to Gley these disadvantages are perhaps more apparent than real. The lack of stimulating substances does not appear to him a great evil. Civilized persons are only too often tempted to abuse stimulants. Moreover, the volume of the foodstuffs would be excessive only if one ate solely cabbages, potatoes and similar vegetables, but not if one uses a diet rich in cereals and in dried fruits. In fact, the vegetarian diet is now used to a sufficiently wide extent to render it possible to collate scientifically made observations showing how far it is compatible with the integrity of all functions in a fully developed life. The experiments of Mdlles. Joteyko and Kipiani, made on forty-three vegetarians of Brussels (students, professors, merchants, employees, artisans, society women and housekeepers) have shown that vegetarians can work two or three times longer than meat-eaters before reaching exhaustion, and that the work of vegetarians is much more productive. The repair of fatigue is also more rapidly effected in vegetarians: two minutes' rest suffices to enable them to recuperate their forces.

But while recognizing that vegetable foods suffice for the normal maintenance of life and for the integral accomplishment of all organic functions, Gley believes that in the present stage of our knowledge, physiologists are compelled to recognize an important difference between the two diets, vegetarian and mixed. This difference has reference to their value from the point of view of the digestive utilization of foods, especially protein foods. It is not a question here of the respective digestibility of vegetable or animal substances. This question, already old, may be considered settled. It is a question of the nutritive value of animal proteins with proteins suitably selected. The work of digestion is accomplished according to the law of economy of labor, to which the organism always tends in its functions, and the application of which is at once advantageous and inexpensive for it. Since the organism is obliged to reconstruct its specific albumins with foreign albumins, this operation will be carried on at a loss in proportion to the difference in composition between the albumins of the food and the specific albumin of the organism. Now there is a considerable difference between vegetable albumins and animal albumins. If, on the other hand, one gives an animal the same albumin as that of its own tissues to build up into its own substance out of the elementary fragments, it is probable that the unutilized part of these fragments, the loss, will be minimum or nil. On this is founded the hypothesis of Magnus-Levy that protein assimilation can be effected in the physiologically least expensive way by feeding animals on the flesh of those closely related to them. Magnus-Levy remarks that at the beginning of their development the highest animals in the series, mammals and birds, use in fact only the albumins of their own species, the first in the form of milk, the second in the form of egg albumin. From the point of view of digestion, we are compelled to admit the superiority of albuminoids of animal origin. It is clear that, for man, these are the substances which are most similar to his own proteins. Magnus-Levy humorously remarks that a cannibal, that is, a creature who feeds on his own species, perhaps realizes more closely the condition of physiologically inexpensive assimilation. Recent experiments have demonstrated the sound foundation of this theory. Physiologists, to be sure, are making no attempt to rehabilitate cannibalism, but they are unable to recommend vegetarianism in place of a mixed diet in which there is place for a moderate quantity of animal proteins more closely related to their own tissues than vegetable proteins.

University Studies and the Three-Year Term of Army Service

In view of the present tense international situation, there is a serious tendency in France toward the reestablishment of the three-year term of military service. The plan, however, has aroused earnest protest, especially in university circles. Protests have been published from a group of students, on the ground that so important a military measure should not be hurried into effect without serious legislative deliberation or discussion, and from a group of professors, including Anatole France, Dr. Gley and Dr. Prenant, who believe that the project would seriously "affect the economical and intellectual life of the country and may even cause retrogression of French civilization." The proposed law provides that medical students who have completed three years of study and who have successfully passed at the end of their first year of service the examination for auxiliary physicians, shall be appointed to that post and shall complete their second and third years of service as auxiliary physicians. The objection to this is that a year is much too long for the preparation of three-year students for

the examination of auxiliary physicians. From four to eight weeks well utilized would be ample. How should the remaining ten or eleven months of the year be employed? In the military instruction of students? But this is useless for physicians who will never be combatants. In a term of service as nurses? This is useless if not harmful, for such service in subordinate capacity is rather calculated to diminish the moral authority so necessary to the physician. Dr. Lepaitre, general secretary of the Union des Syndicats médicaux, suggests that medical students should be attached to the present military hospitals. There during a year they would act as externs and interns, perfecting themselves at the same time in general medicine and learning the details of military medicine. At the end of the first year competitive examination would enable them to be assigned the grades of auxiliary physicians and of reservists, respectively. It is to be feared also that this three years' service may give advantages in various civil competitive examinations to foreign students and to native students not subject to military service. Professor Calmette of Lille in the *Bulletin médical* asks whether women medical students ought not to be compelled before passing their doctorate theses or the examinations for hospital extern or intern to pass three years of service as nurses in the military hospitals.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, March 14, 1913.

Personal

It is reported that Professor Czerny of Heidelberg will give up next year the direction of the institute for cancer research, which was founded by him.

Medical Expert Member of City Council in Berlin

As the result of the persistent efforts of the Berlin medical profession, the municipal authorities have established the office of municipal medical councilor (Stadt-Medizinalrat), and out of forty candidates have chosen Professor Weber, director of the Imperial Bureau of Hygiene, for this position. Weber, who is now 40 years old, was at first an army surgeon, and in 1898 was detailed to the Imperial Bureau of Hygiene. In 1904 he became a regular member of the staff of the bureau. During his official activity he produced a number of works on bacteriology; he took an especially important part in the investigations on the significance of bovine tubercle bacilli to man, which have been carried on by the Imperial Bureau of Hygiene. In 1909 he received leave of absence in order to take the position of secretary-general of the Dresden Exposition of Hygiene. He rendered such excellent service in organizing this exposition that he was appointed, after the close of it, director of the bacteriobiologic department of the Imperial Bureau of Hygiene, as successor to Professor Uhlenhuth, who was called to Strasburg. Weber was one of the delegates from Germany to the International Congress on Hygiene at Washington. On this occasion he read a report on the suppression of epidemic diseases in Germany. In view of his abilities it is expected that he will carry on the arduous duties of his office satisfactorily.

Status of Cancer Research in Germany

A few days ago the Central German Committee on Investigation and Extermination of Cancer (Deutsche Zentralkomitee zur Erforschung und Bekämpfung der Krebskrankheiten) held its annual session in Berlin, in connection with the German Provincial Committee on Investigation of Cancer (Deutsches Landeskomitee für Krebsforschung). The reports on the status of cancer research, made by Professor Orth, who was in charge of the meeting, were not encouraging. As yet nothing definite is known about the origin of cancer in man. The results of the investigations of Fibiger of Copenhagen, who produced with intestinal worms artificial cancerous tumors in rats, cannot be applied to human beings, and therefore his investigations are not of such importance as at first announced by some overenthusiastic correspondents of the lay press. These results do not deal with a direct production of cancer by a parasite, but with only one of the stimuli which have long been known to be active in the formation of epithelioma, such as chimney-sweepers' cancer and similar growths. [See Abstr. 52, p. 948.]

Orth remarked that so long as nothing definite is known concerning the etiology of cancer, our efforts to cure this disease are much handicapped. Through the latest investigations, some scientists have succeeded in curing animal cancer, especially in mice and rats; efforts to obtain the same results in man, however, have so far been negative. Under the circumstances there is nothing else to be done at present on the part of the cancer committee than to enlighten the public and physicians on this subject. The possibility of curing cancer, which at present can be done only by operation, depends on the patient's seeking medical attention as early as possible, and on the physician's skill in diagnosing, which should be so developed that he may recognize the disease in its very beginning. The secretary, George Meyer, reported on the measures taken in this direction. A considerable number of explanatory pamphlets treating of the early diagnosis were distributed.

In the provincial committee the most interesting proposition was made by the Baden delegate, von Wasiliewski of Heidelberg. He referred to the fact that, although no connection is known at present between human cancer and the corresponding tumors in domestic animals, the study of the latter diseases is interesting, scientifically, at least. He proposed making collections of animal tumors. In this connection he had made arrangements with societies for animal breeding and other similar associations to send to the Heidelberger Krebsinstitut animals with tumors, he paying the cost of such animals, which are of no use for any other purpose. In this way scientific material for comparative pathologic and therapeutic studies will be procured, and a sort of statistics as to the origin of tumors in animals will be collected, which can later probably be compared with the corresponding statistics of human beings. This subject was discussed in a lively manner. Privy-Councilor Orth recommended general adoption of such measures. Boas pointed out that certain provinces showed an especially high quota of cancer of the digestive organs, and that in the small manorial districts such cases occur sometimes with remarkable frequency. Also gamekeepers and other persons whose occupation brings them in contact with animals suffer with relative frequency from this disease, so that some relation between human cancer and animal cancer cannot be disregarded.

Home for the Berlin Medical Society

As readers of THE JOURNAL will remember, the Berliner medizinische Gesellschaft has been contemplating for several years building a meeting-house for its sessions, to be dedicated to Rudolph Virchow, who was for many years president of the society. Two years ago the society purchased two houses, paying for these with money gained through a special collection, in the hope that the funds necessary for building might soon again be acquired. This hope, however, has not been realized. In spite of all efforts of the financial experts who are on the executive board of the society, they have failed up to the present to collect the necessary sum; and as the houses purchased do not afford any profit, but are besides a continual loss on account of their dilapidated condition, the society finds itself in an unpleasant situation. After the presentation of these conditions at the general meeting of the society a few days ago, it is expected that the necessary capital will be procured through a loan.

Catholic and Protestant Hospital Diets

An amusing story, which throws a light on the difficulties that sometimes arise in the denominational German hospitals, is reported from Augsburg. This city, which has always played an important rôle in history so far as religious disputes are concerned, has recently been facing a new war of religions in debating the question whether the municipal hospital should sustain, as heretofore, two separate kitchens for the Roman Catholic and Protestant patients, or whether meals for patients of both denominations should be prepared in one central kitchen. The nursing and boarding of the Catholics is in charge of Sisters of Mercy, and the Protestants are taken care of by the evangelical deaconesses. For economic reasons the city authorities wish to consolidate these two departments and establish a central kitchen under the direction of the Roman Catholic sisterhood. The deaconesses, however, feel that they are slighted, and fear the destruction of the amicable relations which have heretofore existed between the two denominations in the hospital. "If the central kitchen comes into effect, we shall withdraw," the deaconesses declared. Also the management of the united Protestant churches of Augsburg has seized this opportunity for announcing that peace between the two denominations will be endangered if the wish of the deaconesses is not granted. So in spite of the fact that the physicians connected with the hospital also advised the consolidation of the kitchens, the city council has decided to retain both departments, so as to avoid a serious conflict with the Protestant population of Augsburg. Consequently, there are still to be had at the hospitals of Augsburg both Catholic and Protestant dumplings.

BUDAPEST LETTER

(From Our Occasional Correspondent)

BUDAPEST, March 5, 1913.

State-Supported Medical Officers in Small Towns

Nagy-Varad (Grosswardein), a flourishing industrial center with 66,900 inhabitants, will be the first town in this country (others to follow from time to time) to establish a university extension with a policlinic for the poorer classes. The policlinic will be open for outpatients, and will be furnished with all modern equipment. The medical staff will include a specialist in clinical medicine, a neurologist, an aural surgeon, a dermatologist, a Roentgen-ray expert and a bacteriologist, who will also conduct the station for the examination of typhoid carriers. The equipment will cost about $15,000, and the medical staff will receive salaries of about $500 a year for attending one hour daily except Sundays. The policlinic will be maintained by the town, and will cost about $10,000 yearly.

The idea of the policlinic, that is to say, the university extension, originated with the chief medical officer of the town, who found that the medical treatment of the poorer classes in the town, as hitherto conducted, was not up to the level of the times. Nominally the poor people have been attended by the three district medical officers, who, being general practitioners (private practice being allowed them), could not afford adequate assistance in cases in which only a specialist could help. Thanks to the Western education of the mayor, the town council has heartily welcomed the creation of the policlinic, and the necessary amount to rent premises and to equip the institution has been voted unanimously.

The Prevention of Tuberculosis in Rural Districts

Dr. Alexander Koranyi, professor of clinical medicine in the University of Budapest, recently delivered an address on the above subject at the Congress of Hungarian Specialists in Tuberculosis. He said that from a prophylactic point of view —with special regard to the agricultural classes—the sanatoriums were not satisfactory. A patient who was severely ill—whether rich or poor—had no proper place in a sanatorium, and would never recover his health there. He also occupied the place of a patient for whom sanatorium treatment might be very useful, namely, one in the initial stage. A poor person, even if in the initial stage, derived very little benefit from sanatorium treatment. If he improved to some extent, after several months' treatment in a sanatorium his condition soon deteriorated when he returned to his insanitary home. Dr. Koranyi said that he was not opposed to sanatoriums as such, but he maintained that only patients in the initial stage, and those who could afford to live under favorable conditions after the sanatorium treatment, should avail themselves of these institutions.

From a prophylactic point of view he regarded the establishing of special tuberculosis pavilions in the general hospitals, and the creation of tuberculosis dispensaries (of which there are about twenty-five in Hungary) as of the first importance. Such institutions, however, would be of little or no benefit to villagers, who would refuse to become inmates of a hospital for a considerable period. They had not the patience necessary for this purpose, and dispensaries could not be established in villages. Dr. Koranyi said that a Danish scientist, as a result of observations made for several years on cows, found that half of them were tuberculous. This was very important, not only in connection with the health of the population but also in connection with national prosperity. The tuberculosis in the cows was evidently perpetuated from generation to generation, the calves being infected by the cows which gave them suck. The Danish scientist in order to prevent the further spread of tuberculosis among his animals had separated the infected ones from the non-infected by means of the tuberculin reaction, and the calves of the infected cows were fed either on sterilized milk or suckled by healthy cows. This experiment resulted in a decrease of the number of infected cows from 70 per cent. to 30 per cent. In this way it was possible to check the spread of tuberculosis in cows with absolute certainty.

From this fact Dr. Koranyi drew the inference that the unhealthfulness of village dwellings was aggravated by the practice of whole families living in one room. A tuberculous and expectorating member of such a family endangered those living with him under the same roof. Children were particularly predisposed to tuberculosis. According to the latest statistics in Hungary 10,000 children died yearly from tuberculosis, and many children who were carriers of Koch's bacillus became ill when grown up and died from tuberculosis. This being so, it was reasonable to separate children from parents who were suffering from manifest tuberculosis with expectoration as long as the children's health was in danger. In order that this might be made possible in the circumstances prevailing in villages, Dr. Koranyi said that one or two villages might maintain one house for this purpose. This house would require only that its windows should be wider than the usual ones and that the house should be kept scrupulously clean. Here the children might be accommodated until the danger had disappeared from their homes. He did not propose to separate a child from its parents entirely; the parents might see it from time to time, but only out of doors. Dr. Koranyi added that he had been successful in persuading several large landowners to build on their estates such special houses for children. He asserted that all the aristocracy and the clergy (who own millions of acres of land in Hungary), would in time follow the example of those above mentioned, and then tuberculosis would not make such ravages in Hungary as it does at present.

Miscellany

Conclusions Regarding Pellagra

After an extensive and intensive epidemiologic study of pellagra in the South, Assistant Surgeon R. M. Grimm (*Public Health Reports*) thus summarizes his findings:

Race: More cases were found among the whites than among the negroes.

Sex: More cases were found among the females of each race than among the males.

Age: More persons developed the disease at ages between 20 and 40 years than at other ages.

Case Mortality-Rate: The case mortality-rate is higher among the negroes than among the whites, highest among the colored females, and lowest among the white males.

Case Insanity-Rate: The case-rate of insanity incidence is higher among the negroes than among the whites, and higher among the males than among the females.

Marital Condition: Among the married and widowed pellagrins the females predominate; the single pellagrins are equally divided among the sexes.

Environment: More cases occurred under conditions of poverty than of comfort, and more under conditions of comfort than of affluence.

Location of Homes: More cases developed in persons living in small towns and villages than among those living in the rural districts.

Relation of Cases: More cases developed in the immediate vicinity of other cases than otherwise.

Food: The relationship existing between the cases of pellagra in this series and the character of the food-supply admits, at present, of no conclusion. In investigations of this character, however, this relationship demands consideration.

Incidence: Pellagra seems to have been on a gradual but constant increase in the districts visited, with the probable exception of the year 1912.

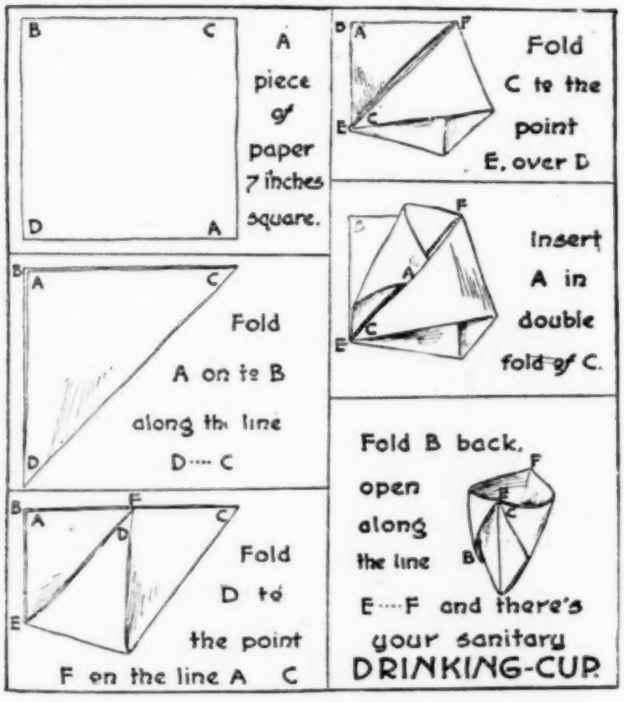
Prevalence: Pellagra is more prevalent than is ordinarily supposed even by the physicians practicing in pellagrous communities, and there are many persons in pellagrous communities who present symptoms of a mild pellagrous condition which do not ordinarily come to the attention of the physician on account of the mild character of these symptoms.

Since the deduction of a correct conclusion presupposes the existence of unquestionable premises, no definite conclusion regarding etiology has been drawn from the results of the work. Premises based on work in other lines seem to be necessary before such a conclusion on this point can be drawn. The possibility of some insect playing a part in the dissemination of the disease does not seem inconsistent with the facts presented above. From Grimm's observations the relationship between food and pellagra seems to be a real one, but whether the character of the food may act only in predisposing to conditions which favor the development of pellagra, or whether certain articles of food act as the real exciting agent, or

whether they act only as exaggerators of the symptoms (as the sunlight, for instance), is an open question. It is possible that certain articles of food may act in all three ways. In the present state of this question no investigation of the etiology of pellagra can entirely ignore the character of the food-supply used by the people among whom the disease is prevalent.

The Value of Open-Air Schools in Fighting Tuberculosis.—S. Bernheim and H. P. Grancher estimate that about 15 per cent. of the children of school age have some form of tuberculosis. Many of these are early and curable cases. Open-air schools should be established for these and should include all thickly children and those with hereditary alcoholism or syphilis. A few such schools have been established by private initiative, and the gain in health and mental activity on the part of the children has shown them to be means of fighting tuberculosis worthy of adoption by the state. It is remarkable further that while the hours of study are shorter and much of the time is devoted to physical exercise and manual training, yet the pupils keep up in their scholastic studies with those in indoor schools, in addition to making marked gains in weight and general health. This article appeared in the *Revue Internat. de la Tuberculose*, 1912, xxii, 413.

An Improvised Individual Drinking-Cup.—This illustration of a method of making an individual drinking-cup from a square sheet of tough paper is taken from the *Health Bulletin* of the Rhode Island State Board of Health. In view of the


A piece of paper 7 inches square.
Fold C to the point E, over D
Fold A on to B along the line D···· C
Insert A in double fold of C.
Fold D to the point F on the line A C
Fold B back, open along the line E···F and there's your sanitary DRINKING-CUP

approaching picnic and outing season, the improvised cup here shown is recommended. Any tough paper will do for temporary use. Paraffin paper is not necessary. Not all paper is sanitary, of course, but any sheet of clean paper would probably be more sanitary than a common drinking-cup.

The Social Influence of Impure Air.—Although we are more immediately concerned with the effects of dust on the lungs, yet the whole body, including the skin, mucous membrane, and the internal organs, suffers in due course by exposure to dust. We seldom think of the part which dust and smoke have played in indirectly shaping the social habits of a people. How to get rid of dust and fume in the factory, of smoke in the atmosphere, and of the incidence of all these on the skin and the respiratory organs of man, has formed not only the subject of many a scientific discussion, but has stimulated enterprise and encouraged manufacture. In trying to combat their begriming effects we have become a well-washed people. The dispersion of these waste products has led to the manufacture and use of soap in proportions hitherto unparalleled in the history of man, while these, again, have indirectly added to employment, wealth and health. Frequent ablution has become the rule, so that baths, a luxury in even large houses in my own country four or five decades ago, are now a necessity, for they find a place in many of the modern houses of the working classes. Dust and fume, begriming agents as they are, have therefore done something to socialize mankind, to promote public health, and to advance civilization, for those nations are leading in the path of progress to-day whose workers not only require soap and water for themselves, but who, by the factory dust and smoke they create, oblige all of us to resort to similar usage.—Sir Thomas Oliver at the International Congress on Hygiene and Demography.

Marriages

RICHARD DERBY, M.D., New York City, to Miss Ethel Carow Roosevelt of Oyster Bay, N. Y., April 4.

EMIL NOVAK, M.D., Baltimore, to Miss Elizabeth Grace Rogers of Brookline, Mass., March 24.

EMIL T. TOHULKA, M.D., to Miss Denna Pierson, both of Glasford, Ill., at Peoria, Ill., March 19.

WALTER ANTHONY STUHR, M.D., to Miss Gladys Caroline White, both of Chicago, April 2.

OSCAR CHARLES KLASS, M.D., to Miss Stella Watkins, both of Muskogee, Okla., March 5.

JESSE S. HIXSON, M.D., to Miss Mary Cooper, both of San Angelo, Tex., March 17.

Deaths

Algernon Thomas Bristow, M.D. College of Physicians and Surgeons, New York City, 1876; a member of the American Medical Association; American Academy of Medicine, and American Surgical Association; once vice-president of the New York Academy of Medicine; editor of the *New York State Journal of Medicine*; clinical professor of surgery in the Long Island College Hospital, Brooklyn; consulting surgeon to St. John's Long Island College, Long Island State, Swedish, Coney Island and Bushwick hospitals; representative of the Medical Society of the State of New York in the House of Delegates of the American Medical Association continuously since 1906 except at the 1908 annual session; chairman of the committee of the American Medical Association to inquire of the British Medical Association whether or not a joint meeting of these two organizations is desirable and possible; a prolific writer, and always an active worker for the betterment of the profession and higher ideals in medicine and surgery; died at his home in Brooklyn, March 26, aged 61, from septicemia, the result of a prick of the finger while operating, two weeks before.

James A. Egan, M.D., since 1897 secretary of the Illinois State Board of Health; died at his home in Springfield, March 30, from nephritis, aged 53. Dr. Egan was a native of Massachusetts and came to Chicago in 1887. He was graduated from Northwestern University Medical School in 1893. For four years after his graduation he was attached in various positions to the department of health of Chicago. After four years as secretary of the State Board of Health he was appointed a member of the board and later was made its treasurer and executive officer. He was a first lieutenant M. R. C., U. S. Army, and a member of the American Medical Association, Association of Military Surgeons of the United States and American Public Health Association. Dr. Egan was aggressive as a public health official and during his incumbency of sixteen years took legal measures against many diploma mills and illegal practitioners. While a man of strong likes and prejudices, he was stalwart and steadfast in his friendship and his death will be deplored by his many friends in and out of the profession.

Sylvester Emory Strong, M.D. New York University, New York City, 1862; founder in 1864 and proprietor of a sanatorium in Saratoga Springs, N. Y., which is known by his name; surgeon of volunteers and acting medical director of the Army of the Cumberland during the Civil War; a member of the American Medical Association; died at his home in Saratoga Springs, N. Y., March 17, aged 75.

John W. Reifel, M.D. University of Texas, Galveston, 1903; of El Paso; for a time a patient at the United States Public Health Service Sanatorium, Fort Stanton, N. Mex.; later superintendent of a sanatorium at Alamagordo, N. Mex., and for a year thereafter state quarantine officer at El Paso; died at the home of his brother in Grand View, El Paso, March 11, from tuberculosis, aged 34.

John Fitz Herbert Sugg, M.D. Rush Medical College, 1880; a member of the American Medical Association; sometime president of the district and Clinton County medical associations; a much-esteemed practitioner of Iowa; founder of the first newspaper in Carroll, known as the *Western Herald*; died at his home in Clinton, March 21, aged 66.

Malcolm Toland Sime, M.D. College of Physicians and Surgeons, New York City, 1895; for ten years a member of the visiting staff of the Woman's Hospital, Philadelphia; formerly assistant surgeon, N. G. Pa., assigned Sixth Infantry; for the last two years a resident of New York City; died in St. Joseph's Hospital, March 3.

John Alfred Hayes, M.D. Dartmouth Medical School, Hanover, N. H., 1862; a member of the New Hampshire Medical Society; surgeon of the Eleventh New Hampshire Infantry throughout the Civil War and brevetted lieutenant-colonel for meritorious service; died at his home in Somersworth, March 21, aged 73.

Frederic Clift, M.D. Keokuk (Ia.) Medical College, 1891; a member of the Utah State Medical Association and secretary of the Davis County Medical Association; for six years assistant to the medical director of the State Mental Hospital; editor of the *Utah Medical Journal*; died at his home in Kaysville, March 28, from pneumonia, aged 65.

Frank Abraham McMahon, M.D. University of California, San Francisco, 1897; surgeon of volunteers during the Spanish-American War, with service in the Philippine Islands and later chief surgeon of the Veterans' Home, Napa County, Cal.; died at his home in Fresno, March 3, aged 45.

Robert Hamilton Campbell, M.D. University of Maryland, Baltimore, 1889; formerly of Rockville, Md.; for two years a medical missionary in China and for three years a resident of Yokohoma, Japan; died at his home in New Orleans, March 17, from typhoid, aged 44.

Lorenzo Waite, M.D. Berkshire Medical College, Pittsfield, Mass., 1854; a practitioner of Berkshire County for fifty-eight years; said to have been the oldest graduate of Berkshire Medical College; died at his home in Pittsfield, March 18, from senile debility, aged 84.

Justus Morris Brown, M.D. University of Pennsylvania, Philadelphia, 1862; Brigadier-General, U. S. Army, retired; assistant surgeon during the Civil War; died at his home in Hackensack, N. J., recently, from cerebral hemorrhage, aged 72.

John Clear, M.D. Kentucky School of Medicine, Louisville, 1885; a member of the Tennessee State Medical Association; of Clinton; died in the Lincoln Memorial Hospital, Knoxville, March 23, from cerebral hemorrhage, aged 57.

Lancelot M. Ardiel, M.D. Western University, London, Ont., 1891; of Avoca, Mich.; a member of the American Medical Association; died at the home of his brother-in-law in London, Ont., March 19, from heart disease, aged 45.

Edward Pardee Bucke, M.D. Western University, London, Ont., 1899; assistant lecturer on diseases of the eye, ear, nose and throat in his alma mater; died at his home in London, February 15, from pneumonia, aged 37.

Gustave A. Zimmerman, M.D. University of Pennsylvania, Philadelphia, 1878; a practitioner of Johnstown, Pa.; died in the Presbyterian Hospital, Albuquerque, N. Mex., March 14, from tuberculosis, aged 63.

Ulysses S. Durham, M.D. St. Louis College of Physicians and Surgeons, 1890; a member of the American Medical Association; of Cairo, Mo.; died in the Woodland Hospital, Moberly, Mo., March 17, aged 47.

Theodore Lincoln Hatch, M.D. University of Michigan, Ann Arbor, 1871; a member of the Minnesota State Medical Association; died at his home in Owatonna, March 11, from heart disease, aged 65.

James L. Hendricks, M.D. Cincinnati College of Medicine and Surgery, 1891; for one term coroner of Boone County, Ind.; died at his home in Lebanon, March 14, from cerebral hemorrhage, aged 67.

Ernst Hildebrandt, M.D. Royal Christian-Albrechts University, Kiel, Germany, 1849; a member of the Minnesota State Medical Association; died at his home in Forest City, about March 17.

Augustus Meek Duncan, M.D. University of Alabama, Mobile, 1874; for many years a practitioner of West Green, Ala.; died at the home of his niece in Birmingham, March 15, aged 66.

Edward Elward Kitchen, M.D. Toronto School of Medicine, 1865; formerly chairman of the Provincial Board of Health of Ontario; died at his home in St. George, February 19, aged 66.

Theodore L. Wiegers, M.D. St. Louis College of Physicians and Surgeons, 1904; a member of the American Medical Association; died at his home in Wentzville, Mo., March 3, aged 34.

Robert Preston Robinson, M.D. Trinity Medical College, Toronto, Ont., 1888; for many years a practitioner of Ottawa; died in Hyde Park Sanitarium, Toronto, January 16, aged 47.

Bruce Thomas, M.D. University of Maryland, Baltimore, 1852; of Philadelphia; formerly of Frederick, Md.; died in the American Hospital, Philadelphia, March 14, aged 80.

F. E. Guibor, M.D. Missouri Medical College, St. Louis, 1872, a member of the American Medical Association; died at his home in Maplewood, St. Louis, January, aged 61.

Miles Hall Bronson, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1861; died at his home in Lowville, N. Y., March 16, from pneumonia, aged 78.

Thomas Knowlton Marcy, M.D. College of Physicians and Surgeons, New York City, 1860; died at his home in Poquonock, Conn., March 2, aged 78.

Samuel C. Skeel, M.D. St. Louis College of Physicians and Surgeons, 1884; died at his home in St. Louis, March 15, from cirrhosis of the liver, aged 73.

James F. Flynn, M.D. Chicago Homeopathic Medical College, 1893; died at his home in Humboldt, Kan., February 1, from cerebral hemorrhage, aged 50.

Elias McKay Jenkins, M.D. University of Michigan, Ann Arbor, 1856; died at his home in Addison, about March 13, from senile debility, aged 84.

Myra Amanda Gillette, M.D. Hahnemann Medical College, Chicago, 1886; died at her home in Medina, N. Y., March 13, from tuberculosis, aged 58.

Dan L. Fry, M.D. Kentucky School of Medicine, Louisville, 1889; a practitioner and dentist of Hickory, N. C.; died at his home, March 16, aged 49.

John L. Guill, M.D. University of Nashville, Tenn., 1856; died at his home in Mount Juliet, Tenn., March 13, from senile debility, aged 82.

William Richard Cann, M.D. University of Toronto, 1911; died at his home in Horning's Mills, Ont., January 19, from pneumonia, aged 28.

Albert Lawrence Collins, M.D. Medical College of Indiana, Indianapolis, 1883; died at his home in Long Creek, Ill., February 4, aged 52.

James Lovick Sappington, M.D. Atlanta (Ga.) Medical College, 1870; died at his home in Whitesville, Ga., about March 13, aged 63.

William I. Reese, M.D. College of Physicians and Surgeons, Baltimore, 1893; died suddenly at his home in Red Oak, Okla., February 14.

Frank Pitman Osborn, M.D. University of Missouri, Columbia, 1906; died at his home in Oakwood, Okla., January 29, aged 48.

George Albert Clark, M.D. Medical School of Maine, Brunswick, 1870; died at his home in Portland, Me., February 18, aged 66.

Reuben D. Love, M.D. Louisville (Ky.) Medical College, 1892; of Hugo, Okla.; died in Mineral Wells, Tex., March 12, aged 59.

Lucien W. McKinley, M.D. Jefferson Medical College, 1880; died at his home in Columbus, O., March 13, aged 55.

Francis Xavier Aveline (license, Indiana, 1897); died at his home in Marion, February 9, aged 55.

James D. Neel, M.D. Jefferson Medical College, 1859; died at his home near Troy, S. C., March 12.

N. Graham Shaw (license, N. C., 1898); died at his home in Maysville, February 13, aged 52.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MANOLA

Physicians as Unpaid Pedlers of Nostrums

One of the most disheartening features of the fight against the proprietary evil within the profession is the slowness with which physicians awake to their responsibilities in the matter. It is a notorious fact, familiar to physician and advertising man alike, that the simplest and cheapest way to introduce a nostrum to the public is through the instrumentality of the medical profession. Ever since the birth of the proprietary evil in this country, shrewd manufacturers have persuaded doctors to act as unpaid pedlers for their wretched nostrums and to become *particeps criminis* in the exploitation of such wares.

Manola is an alcoholic nostrum with just enough more or less inert medicinal products added to exempt it from the internal revenue tax, but not enough to prevent it being used as a tipple by those who object to taking their "toddy" in a simpler form. It is prepared by the Luyties Pharmacy Company of St. Louis, a homeopathic concern whose hahnemannian leanings are not so strong but that it is willing to cater to the various sectarian schools of medicine as well as to the regular profession. Since the promoters realize, doubtless, that to put this stuff out under a homeopathic label might not be conducive to stimulating physicians' confidence, Manola is labeled: "Prepared only by the Manola Company, St. Louis." In other words, it is the old dodge of forming subsidiary companies for the purpose of hiding the identity of the real owners. In this connection, it is worth reminding our readers, incidentally, that the Walker Pharmacal Company, St. Louis, is another subsidiary concern of the Luyties Pharmacy Company, created for the purpose of pushing another nostrum—Hymosa.

Manola is seldom advertised in medical journals. Instead the Luyties Pharmacy Company has discovered a more effective method of "putting one over" on physicians and druggists. The method which has been pursued for years and which, under the same title and subtitle that head this article, was exposed in THE JOURNAL as long ago as May 6, 1905, consists in sending to physicians a letter containing three postcards—unstamped, of course. With the postcards there is a slip that reads:

INSTRUCTION FOR OBTAINING
3 BOTTLES OF MANOLA FREE

Dear Doctor: Fill out the attached cards Nos. 1 and 2. Mail No. 1 to *us* and hand Nos. 2 and 3 to *your druggist*. Impress upon him the necessity of mailing postal card No. 3 *direct* to us, and *not* to his jobber.

Yours truly,
THE MANOLA COMPANY.

The postcards are numbered, respectively, 1, 2 and 3. Here is No. 1:

1 **Mail This Card to the Manola Co., St. Louis, Mo.**

Date ..... 19 ...

THE MANOLA COMPANY
St. Louis, Mo.

Gentlemen:

I have requested Mr. .....
druggist, to order one dozen bottles of MANOLA for my prescriptions. Please include with his order three bottles for me, as per your offer.

DR. [redacted]
[redacted]
CHICAGO ILL.

Dr. Ezymark writes the name of his druggist on Card 1, puts a stamp on it and mails it to the Manola Company, alias Luyties Pharmacy Co

Card 2, addressed to his druggist, also is filled out by Dr. Ezymark. Here it is:

2 **Please Hand This Card to Your Druggist**

Mr ..... Druggist.

Please order of the Manola Company, St. Louis, Mo., 1 dozen bottles of Manola, all of which I agree to prescribe in my practice. By filling out card No. 3 and forwarding it to the Manola Company, St. Louis, Mo., they will include for me, with your order, three bottles of Manola, free, for clinical purposes.

Yours truly,

..... M. D

Town .....

Then the doctor, acting the part of errand-boy, delivers Card 2 and also Card 3 to his druggist. Here is Card 3:

3 **PLEASE FILL OUT AND MAIL THIS CARD TO THE MANOLA CO., ST. LOUIS, MO., NOT TO YOUR JOBBER**

Date ..... 19 .....

THE MANOLA COMPANY, St. Louis, Mo.

Gentlemen.

Please ship me / us as per your offer

1 dozen MANOLA ..... at $8.00 per dozen.

½ dozen MANOLA, free, for Dr. .....

Ship through my jobber: Signed ..... Druggist.

M .....

Town ..... Town .....

State ..... State .....

This, Mr. Goat, the druggist, has to fill out, affix a stamp and send to the Manola Company. In return for all this, Mr. Goat has his shelves loaded up with a dozen bottles of Manola and, for that privilege pays $8 out of his own pocket. Dr. Ezymark gets three free bottles. Incidentally, he also gets the contempt of his druggist—and of such patients as learn of it.

The only one who profits by all this is the Luyties Pharmacy Co., alias the Manola Co., alias the Walker Pharmacal Company.

Evidently this method of exploitation pays; that it does pay is a disgrace to the medical profession. To those physicians who have in the past acted as pedlers for Manola we would say: If your patients really need sherry wine let them purchase it under its own name and at the ordinary market price. You will then know what they are getting and you will be able to retain not only your own self-respect but also the respect of your druggist and the public.

THE GATLIN INSTITUTE

A physician who asks us to sign his letter X. Y. Z., Nashville, Tenn., writes:

"Can you give me any information in regard to the 'Gatlin Treatment' for the cure of alcoholics and drug fiends? Does it do the work successfully? Would it be considered ethical for a regular M.D. to use it in connection with other treatments for these conditions, and make that his specialty? I understand it is a patented treatment and that one has to pay a royalty for the privilege of using it."

The Gatlin Institute is one of the many "three-day liquor cures" with which the country is at present afflicted. What the treatment is, we do not know. Ipecac seems to be an important part of the "treatment," judging from a specimen of one of the preparations said to be used by this concern and sent us by a physician. The claim made in some of their advertising that "by this method failure to cure is impossible" is, of course, false on the face of it. The claim, also, that "for ten years the Gatlin Institute treatment has been restoring

men to mental and physical health in three days . . .” is equally impossible and absurd. There seems to be a close connection between the “Gatlin Institute” and the “Neal Three-Day Liquor Cure.” The Neal concern is operated from the Chicago Hospital. Connected with the Neal outfit is one Joseph DeBarthe, who calls himself “doctor” and who for some time exploited the “DeBarthe Rheumatism Cure.” The DeBarthe fakery was discussed in THE JOURNAL, Dec. 16, 1911, and the matter has been reprinted in “Nostrums and Quackery.” At present DeBarthe seems to be pushing a new mail-order fraud that he calls Kinpo, which is guaranteed to “sober you up immediately.” We are told:

> “Kinpo is not a cure but a sobering up process.”
> “No medicine can cure the drink habit.”
> “Kinpo does, in a few hours, for two dollars, what so-called cures cannot do in three days at a cost of $125.”

It should not be difficult for our correspondent to answer his own question from the data given.

THE AMOUNT OF COD-LIVER OIL IN VARIOUS PREPARATIONS

The following inquiry was received from Dr. E. H. Morgan, Granbury, Tex.:

> “Some time ago I noticed in THE JOURNAL an article comparing the amount of cod-liver oil in the different preparations of the various manufacturers, including Wampole, Parke, Davis & Co., Wyeth & Brother, and others, stating that the amount of cod-liver oil did not come up to the statements of the manufacturers, and giving the percentage in each preparation. I have been looking for this article in back numbers of THE JOURNAL and have failed to find it. I have been prescribing Wampole’s but it seems that some of the other preparations contained more cod-liver oil than Wampole’s, and of course I am anxious to find out the one containing the most cod-liver oil that I may specify it.”

A sharp distinction must be made between emulsions of cod-liver oil, which contain the oil, and the so-called extracts, in which no oil is present. Regarding emulsions, the results of analyses made by the Connecticut Agricultural Experiment Station (and abstracted in THE JOURNAL, March 30, 1912), show that when the preparations were labeled U. S. P. or N. F. they complied fairly well with the requirements. Consequently if a physician desires to use preparations of this sort, it is well to see that they are labeled as official preparations, or to employ some of the approved preparations which will be mentioned. A number of cod-liver oil emulsions are described in the National Formulary. Thus, glycerin emulsion of cod-liver oil, N. F., is an emulsion made with yolk of egg, and contains 50 per cent. of cod-liver oil. This emulsion may be made by any competent pharmacist or can be purchased from pharmaceutical manufacturing houses. For instance, the H. K. Mulford Company lists:

> “Cod-liver oil, nutritive (egg emulsion) Cod-liver oil, 40 per cent., emulsified with eggs and brandy.”

Also, Parke, Davis & Co. list:

> “Egg emulsion of cod-liver oil, improved. . . . Contains 40 per cent. by volume, of pure cod-liver oil, emulsified with fresh eggs and flavored with superior brandy.”

And in the appendix to New and Nonofficial Remedies are mentioned the following preparations of cod-liver oil and malt extract:

> Maltine with Cod-Liver Oil: Representing maltine, 56.115 per cent.; glycerin, 10 per cent.; cod-liver oil, 30 per cent.; alcohol, 3.885 per cent.
> Maltzyme with Cod-Liver Oil: Consisting of maltzyme concentrated and brought back to its original volume by the addition of 25 per cent. of Lofoten cod-liver oil.

The second class, the so-called extracts, includes preparations which are devoid of oil and which are said to represent extractive matter obtained either from cod-liver oil or from cod livers. They are asserted to represent the virtues of cod-liver oil, but lack the very constituent which lends the oil its virtues, namely, the fat. A discussion of cod-liver oil substitutes appeared in THE JOURNAL, Oct. 13, 1906, and gave simple directions whereby they may be distinguished from real cod-liver oil emulsions. The notorious Waterbury humbug was discussed in THE JOURNAL, Oct. 9, and 23, 1909. Like most substitutes for cod-liver oil, the Wampole preparation is said to contain various other ingredients, such as malt extract and an assortment of hypophosphites. The following comment appears in the report of the Connecticut Agricultural Experiment Station:

> Wampole’s Perfected Tasteless Preparation of the Extract of Cod Liver: “Contains a solution of the extractive obtainable from fresh cod liver, the oily or fatty portion being afterward eliminated. This extractive is combined with liquid extract of malt, fluidextract of wild cherry bark and compound syrup of hypophosphites (containing calcium, sodium, potassium, iron, manganese, quinin and strychnin).” In spite of the presence of the different hypophosphites as claimed, the total phosphoric acid in this sample amounts to only 0.14 per cent., so that the amount of hypophosphites present cannot be great. In other respects the label is a reasonably accurate description of the product.

While Henry K. Wampole & Co. do not claim the presence of cod-liver oil in their compound, the error of our correspondent in assuming its presence is natural and illustrates how not only the public but also the medical profession are misled by this class of preparations.

Association News

THE MINNEAPOLIS SESSION

Plans for the Reception and Entertainment of Members Aside from the Scientific Meetings

Plans for the meeting of the American Medical Association in June are being rapidly matured by the local committees at Minneapolis and associate committees in the sister city of St. Paul. While Minneapolis is the special hostess on the occasion, the city of St. Paul will take a substantial part in helping to entertain the large body of medical guests, with their families. From six to eight thousand visitors are expected by the local committee.

The University of Minnesota has placed at the disposal of the local executive committee the entire campus, with its many buildings, as the special meeting-place of the Association. The scientific exhibit and the commercial exhibit have been provided with ample quarters in the university buildings.

HOW TO MAKE HOTEL RESERVATIONS

Members of the Association are requested to notify Dr. S. Marx White, chairman of the Committee on Hotels, as speedily as possible, of the date of their expected arrival and of the extent and character of the accommodations they will require. The hotels, which are of unusually good capacity, will be reinforced by the several private clubs of the two cities, which are placing their rooms at the disposal of the committee. For a list of hotels, giving their location, rates and other information, see THE JOURNAL, March 8, 1913, p. 764.

ATTENTIONS TO BE SHOWN VISITING MEMBERS

A large reception committee has been organized, members of which will be assigned to each railway station, to meet each incoming train and pilot to their destination the guests of the Association. Bureaus of information for the benefit of visitors will be established at stations, hotels and meeting-places. A special committee of women physicians will take care of their professional associates who attend the meeting.

A committee on local transportation will make it its special business to pilot guests about the city and to secure adequate street-car, taxicab and automobile facilities for the larger events on the program.

OTHER ANNUAL MEETINGS

Among the unaffiliated scientific bodies which take advantage of the meeting of the American Medical Association to hold their annual sessions, just before it or just after, are the American Academy of Medicine, which will meet June 13 to 15, at the Hotel Leamington, Minneapolis; the Association of

American Teachers of Diseases of Children, which meets at the Commercial Club, June 16. Other announcements will be made later.

OBSERVANCE OF PUBLIC HEALTH SUNDAY

Association Week will be opened with the observance of Public Health Sunday, June 15, in Minneapolis and St. Paul. The various ministers' associations have given their cordial support to this plan, and with practical unanimity the individual churches will invite to their pulpits public health speakers provided by the Council on Health and Public Instruction of the American Medical Association. The ready sympathy this movement has met goes to prove the appeal of the gospel of sanitation to the people.

RECEPTIONS AND PLEASURE-TRIPS

The plans of the entertainment committees in both Minneapolis and St. Paul include arrangements for an unusually brilliant series of social events. The ladies of the Twin Cities are anticipating the attendance of a large number of the wives and daughters of members and are preparing to make their visit an enjoyable one. The environs of the Twin Cities are of remarkable natural beauty and, linked with their park systems, which are wonderfully well developed, give ample opportunity for outdoor pleasure.

EXCURSIONS FROM MINNEAPOLIS

Minneapolis is a good point from which members and their families may extend their annual holiday by way of excursions to the great sight-seeing regions of the Northwest. A committee of arrangements, appointed for this purpose, has planned a party to go by special train on a twelve days' trip to the Yellowstone National Park. From this point special opportunities will be given for extended excursions to the Colorado Rockies, the Canadian Rockies, to California and the Puget Sound country, and on to Alaska for a twelve days' cruise by way of the inland passage, to the Land of the Midnight Sun, including visits to some interesting Indian and Eskimo villages and to some of the finest of the Alaskan glaciers. (See THE JOURNAL, February 8, p. 460 and March 29, p. 1010.)

THE MINNEAPOLIS NUMBER

The usual illustrated convention number of THE JOURNAL will be issued May 10. The "Minneapolis Number" will describe the plans for the meeting, the convention city, and give details of the programs, hotels, social events, railroad excursions and other matters of interest.

Correspondence

A Device to Increase Humidity in the House in Winter

To the Editor:—The problem of getting enough moisture in the air of our houses in winter has been rather difficult to solve; but after trying many experiments I have hit on a simple device which may be worth passing along.

Some of the various contrivances in the shape of radiator pans are unsightly, and most of them, in my experience, inadequate. Shallow pans placed on top of the radiators are the most effective, but are usually inconvenient and unsightly. The concealed, fluted, deep pans which are made to hang back of the radiators have too small a surface to allow much vaporization, and are poorly heated.

To furnish air fit to breathe, a quart of water transformed into vapor every twenty-four hours is none too much for a room 14 feet square. These pans, as I have seen them used, furnish much less than that amount.

I have found that the vaporization can be doubled or quadrupled by the use of cloths of any absorbent material twisted through two or three coils in the back of the radiator, with one or both ends dropped into the pan of water. The material acts like the wick of a lamp, drawing up the water as fast as it is evaporated. As it is in close contact with the radiator surface it is heated very quickly, and the extensive surface of the twisted cloth fulfils the second requirement for securing rapid evaporation.

With this device, any sort of pan which admits of easy concealment under or behind the radiator may be used, and the amount of water evaporated may be regulated at will by the number and size of the cloths used. The cloths, of course, can easily be concealed.

I have increased the average for each radiator from a pint or less in twenty-four hours to a gallon in the same time, by the use of these absorbent cloths, and it could be increased still further almost *ad libitum*.

KENNETH TAYLOR, St. Paul.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ABELEN'S REACTION FOR SALVARSAN IN URINE

To the Editor:—Please explain the method described in THE JOURNAL, Oct. 19, 1912, p. 1493, for detecting salvarsan in urine. How is the 10 per cent. alkaline resorcin solution made?

O. D. P.

ANSWER.—The writer of the article referred to uses Abelen's reaction for salvarsan in urine as follows: From 7 to 8 c.c. of urine are made acid by 2 or 3 drops of 0.1 per cent. hydrochloric acid. Then 3 or 4 drops of a 10 per cent. sodium nitrite solution are added (by a typographic error this was given in our abstract as "nitrate"); then 2 or 3 drops of alkaline resorcin solution (10 per cent.) and at last an excess of sodium hydroxid. The whole reaction should be carried out with the vessels in ice-water, as a higher temperature destroys the diazo compounds formed. The article does not explain what is meant by alkaline resorcin, but we judge that it is simply a solution of resorcinol which has been made slightly alkaline. Evidently this is a reaction for the benzol constituent of salvarsan and not for the arsenic.

OZONE AS A MEDICINE

Several inquiries have been received recently regarding the use of ozone. The following list of references to this subject may be of general interest:

Schaefer, F. W.: The Supposed Beneficial Effects of Ozone, a Popular Medical Fallacy, *Dietet. and Hyg. Gaz.*, 1908, xxiv, 385.

Stoker, G.: Cavity of Lung Successfully Treated with Ozone, *Lancet*, London, April 18, 1908.

Purification of Water by Ozone, editorial, THE JOURNAL, Aug. 21, 1909, p. 636.

Purification of Water by Ozone, correspondence, THE JOURNAL, Sept. 25, 1909, p. 1042.

Franklin, M. W.: Ozone, *New York Med. Jour.*, April 8, 1911.

The Alleged Hygienic Value of Ozone, editorial, THE JOURNAL, Oct. 21, 1911, p. 1370.

Ozone Myths, editorial, THE JOURNAL, Feb. 10, 1912, p. 412.

Effects of Ozonization, Vienna Letter, THE JOURNAL, July 13, 1912, p. 131.

Pfannenstill, S. A.: Local Treatment of Tuberculous and Other Infectious Processes with Combined Action of Sodium Iodid and Ozone, *Nord med. Ark.*, 1912, abstr., THE JOURNAL, July 27, 1912, p. 318.

DISCOLORATION OF THE SKIN FROM GOLD JEWELRY

To the Editor:—I have a peculiar case regarding which I can find nothing in my books. A young woman, aged 24, is much annoyed by a dark discoloration of the skin of the neck whenever she wears any gold chain, locket, etc. If the jewelry is left off, this discoloration wears away after several days. It is not noticed on any other part of the body, the patient says. She is taking no medicine internally, nor does she use any external application other than pure talcum powder.

C. N. S. R.

ANSWER.—This is probably due to the formation of the oleate of gold. Some persons are more prone to it than others. This point was taken up at greater length in this department, June 1, 1912.

SUBSTITUTE FOR COFFEE

To the Editor:—In answer to the inquiry in THE JOURNAL, Feb. 1, 1913, p. 390, a satisfactory substitute for coffee, which was used during the war, is made of rye. Roast the grains in oven and grind like coffee; boil from fifteen to twenty minutes. If served hot with cream and sugar it is delicious.

S. D. W.

AUTO-INTOXICATION AND THE REACTIONS OF TOXINS

To the Editor:—1. Please give me a few references to magazine articles or books on intestinal intoxication, wrongly termed "auto-intoxication."

2. What reaction (alkaline or acid) do the invasions of bacterial organisms produce in the human or animal body? Please cite references along this line.

H. L. STITT, M.D., Washington C. H., Ohio.

ANSWER.—1. Abrams: Auto-Intoxication, E. B. Treat & Co., 241 West Twenty-Fifth Street, New York, $1.50.
Bouchard: Auto-Intoxication, F. A. Davis Co., 1914 Cherry Street, Philadelphia, $2.
Combe: Intestinal Auto-Intoxication, Rebman Co., 1123 Broadway, New York, $4.

2. Both alkaline and acid reactions are produced. As a rule, organisms which decompose carbohydrates produce acids, while the putrefaction of protein substances results in the formation of ammonia or of some of the combined ammoniums which are alkaline in reaction. Some of the products of putrefaction are, however, neutral. A good book on this subject is Herter's "Bacterial Infections of the Digestive Tract," published by the Macmillan Company, 66 Fifth Avenue, New York, at $1.50.

AMERICAN SOCIETY FOR PHYSICIANS' STUDY TRAVELS

To the Editor:—I understand there is a doctors' club going abroad this summer to visit various clinics. If you could give me any information on the subject, I should greatly appreciate the favor.

ALBERT SMITH, M.D., Parsons, Kan.

ANSWER.—Our correspondent presumably refers to the American Society for Physicians' Study Travels. He can write to the chairman, Dr. J. M. Anders, 1605 Walnut Street, Philadelphia, for further information. A preliminary announcement concerning this new organization appeared in THE JOURNAL, Jan. 4, 1913, p. 66.

REPRINTS CANNOT BE SHIPPED BY PARCEL POST

A number of authors in ordering reprints have requested that these be shipped by parcel post in order to save expense. THE JOURNAL has had to reply that at present the post-office does not permit the shipment of reprints by parcel post; they are classified with books—at the third class rate. There are a number of features about the parcel post which it is hoped may be modified. This certainly is one. Just why books should not be treated so favorably as a box of cigars, for instance, we cannot see.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

EDUCATIONAL WORK OF THE SPEAKERS BUREAU

One of the important activities of the Council on Health and Public Instruction of the American Medical Association is the Speakers Bureau. This has been in existence for the past year. Most of the work done during the spring of 1912 was in the nature of experiment, as it was necessary to learn the best methods for carrying on the work, as well as the best mediums for publicity. In October, 1912, an announcement was sent to the presidents and secretaries of all county and state medical societies and women's clubs, to the presidents and the secretaries of the faculties of universities, colleges, academies, normal schools, etc., as well as to chautauquas and teachers' institutes, offering to furnish speakers from a selected list of about a hundred and twenty-five well-known members of the Association. The Council offered to pay the expenses of the speakers, provided the local organization would furnish a meeting-place and advertise the meeting to the public.

The reception given the announcement of this plan showed that the public was interested in health matters and that the organization of such a bureau met a real need. Requests for speakers began to come in at once and have been received steadily ever since. From November 1 to March 31, the bureau has furnished speakers for 119 public meetings. The letters and clippings regarding the meetings have been interesting, as showing the point of view of the public and the appreciation of any efforts made for their education on health subjects. Extracts from a few of these letters may be of interest. The following are selected at random:

Dr. Lewellys F. Barker of Johns Hopkins University Medical School spoke recently in New Windsor, Md. Mr. I. C. Keller, the chairman of the local committee, writes:

"Dr. Barker delighted all who heard him. 'Why do you not speak longer?' was the question asked by many. In a simple, clear and beautiful manner he told us of the triumphs of modern medicine. We very much appreciate the favor which the American Medical Association has conferred on us in giving us this opportunity to hear Dr. Barker. I am sure that lasting benefits will result from his visit."

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, spoke, Sunday afternoon, February 9, at West Medway, Mass. The committee on arrangements was made up of representatives of the women's clubs, men's club, local board of health, board of aldermen, grange, school committee, Village School Improvement Society and the Historical Society. As a result the audience was a large and representative one. Mrs. E. S. Woodman, writing for the committee, says:

"We feel very grateful to the American Medical Association for making such a meeting possible, and if the offer is repeated next year we shall certainly avail ourselves of it."

The offer will be repeated next year. The education of the public by the scientific physicians of the country has just begun.

Dr. George B. Young, health commissioner of Chicago, spoke, March 19, in Des Moines, Iowa. Mrs. S. J. Dillon writes:

"I wish to thank you in behalf of the Des Moines Woman's Club for your splendid arrangement which made it possible for us to have Dr. Young address our people. We were able to secure an unusual thing in our city—an audience composed of representative people, including members of the various social service organizations, physicians and representatives from the city council. We look for good results to follow. Dr. Young's address made a profound impression."

In college towns the intellectual life of the place generally centers around the college. The Y. W. C. A. of Albion, Mich., evidently believes that good health is necessary for true Christianity. The association recently arranged for a public meeting and asked for Dr. Miles F. Porter of Fort Wayne, Ind. Following Dr. Porter's address, the young woman who was chairman of the committee on arrangements wrote:

"Dr. Porter's talk was not only of interest but has met a genuine need in our community. The people are very much interested in public health questions and are appreciative of an opportunity of learning."

One of the subjects on which much interest has been manifested is that of sex hygiene and the proper instruction of girls and boys on this subject. Dr. E. W. Fiegenbaum of Edwardsville, Ill., is one of the most active members of the organization in his part of the state. He was for some time an efficient secretary of his county society. He has been deeply interested in the education of the public on sex hygiene, in order to protect the innocent and ignorant from becoming victims of disease. Dr. Fiegenbaum recently spoke in Granite City, under the auspices of the local board of education. The secretary of the board writes:

"Dr. Fiegenbaum delivered his address here to a large and well-pleased audience. The church was well filled, there being some three hundred present, and from the comments made it was apparent that all were well pleased and instructed."

The state superintendent of schools of West Virginia asked the Speakers Bureau to send Dr. A. T. McCormack of Bowling Green, Ky., to give an illustrated address before a conference of county superintendents. Dr. McCormack spoke in the Y. M. C. A. Hall to an audience made up of superintendents of education, members of the state legislature and the general public. The impression made is shown by the fact that the

state superintendent, Prof. M. P. Shawkey, at once asked if the bureau could arrange for Dr. McCormack to give an illustrated address before each of the teachers' institutes in the state. The bureau is arranging to do so.

Athens, Tenn., is interested in municipal hygiene. The local woman's club secured the cooperation of all the public-spirited organizations in the city, arranged for a public meeting and asked the bureau for Dr. William Krauss of Memphis. Mrs. E. C. Ferguson, the chairman of the local committee on arrangements says:

"The address was given at the court-house. Mayor Grant presided and introduced the speaker to a large audience, which included not only citizens of the town but many from other parts of the county, as the county court was in session at the time. Dr. Krauss was listened to with close attention in his discussion of public welfare, sanitation and health."

In response to invitations, Dr. E. E. Montgomery of Philadelphia filled appointments on two consecutive evenings in Easton and Grove City, Pa. The chairman of the local committee at Grove City writes:

"Our meeting here Saturday evening was a pronounced success. A good attendance was present, and all thoroughly enjoyed Dr. Montgomery's lecture. Many kind expressions were heard concerning the American Medical Association and its splendid work. Dr. Montgomery made a good impression by his ability, sincerity and complete knowledge of his subject. We hope you will keep us on your list for next year, as we shall be glad to cooperate in your campaign of educating the public on health matters. We thank the American Medical Association for its kindness and for the great privilege of having Dr. Montgomery here."

Following Dr. Winfield S. Hall's address at Benton Harbor, Mich., the chairman of the local committee, after commenting on the favorable impression made by Dr. Hall on his audience, composed of members of several literary clubs, mothers' clubs, teachers, physicians and business men, and on the value of the meeting to the public, says:

"This plan of the American Medical Association seems a very wise one and one which will surely result in a clearer knowledge of what the young people need. We thank you very much for what you have done to help us get the benefit of this plan."

Another member of the local committee writes:

"I have wished many times that you might hear the enthusiastic discussion and comments which Dr. Hall's lecture called forth. The most gratifying result was that the women, who are not usually interested in lectures, attended this one and earnestly discussed with other women who had not been present, thereby spreading enthusiasm and creating a greater interest in the subject."

Some of the meetings have been arranged for by the university faculties, the audiences being made up of teachers, students and the local public. Dr. Victor C. Vaughan, dean of the Department of Medicine and Surgery of the University of Michigan, arranged, through the bureau, for a series of addresses on public health, one of which was delivered by Dr. Abraham Jacobi, President of the American Medical Association. Following the meeting, Dr. Vaughan wrote:

"Dr. Jacobi was here February 19, and gave us splendid talks. The whole town is enthusiastic about him and they have pronounced him a grand old man. We have never had so successful a meeting."

Similar series of meetings have been arranged for by the bureau in connection with the universities of Wisconsin, Minnesota, Illinois, Arizona and others. The work of the Speakers Bureau is only beginning. It is capable of great expansion in scope and increase in usefulness. Readers of THE JOURNAL should know of its existence and of its work, so as to be able to inform any local organization desiring an authoritative speaker on health topics how the cooperation and assistance of the bureau can be secured.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 7-8. Sec., Dr. John Wix Thomas.

DISTRICT OF COLUMBIA: Washington, April 8. Sec., Dr. George C. Ober, 125 B St., S.-E.

ILLINOIS: Armory Battery B, Chicago, April 29-May 1. Acting Secretary, Amos Sawyer, Springfield.

NEW MEXICO: Santa Fe, April 14. Sec., Dr. W. E. Kasey, East Las Vegas.

OKLAHOMA: Oklahoma City, April 8. Sec., Dr. John W. Duke, Guthrie.

WEST VIRGINIA: Huntington, April 14. Sec., Dr. H. A. Barbee, Point Pleasant.

THE PRESENT STATUS OF MEDICAL EDUCATION*

N. P. COLWELL, M.D.

Secretary of the Council on Medical Education of the American Medical Association

CHICAGO

As shown by Chart 1, in 1904, there were 166 medical schools in the United States which was nearly one-half of the world's supply of medical colleges. Since that time, very largely since 1907 when the first classification of colleges was prepared, the decrease in the number of schools has been quite rapid. This has been brought about partly by the disappearance of the commercial medical schools which have gone out of existence but more largely through the merger of several small schools in each of numerous localities, leaving in each instance one larger and stronger school, such as was done in Louisville, Ky., where five colleges merged into one. The same thing has occurred in Indiana, Minnesota, Iowa and elsewhere. The number of medical schools will be about 110 at the end of the present college session. This decrease in the number of medical colleges has not been to the detriment of medical education but to its advantage. It has not removed or lessened the opportunities for students to study medicine, but has resulted in giving them better opportunities. It has resulted in reducing the abnormal oversupply to a smaller number but a better grade of medical schools.

A word or two with reference to the reduction in the number of medical schools. Statements are frequently made about "the poor boy who cannot get a medical education." That statement has been made so often that it is hardly worth while to refer to it in this conference, but the last educational number of THE JOURNAL, Aug. 24, 1912, shows the tuition fees that are charged by medical schools. The fees charged by some Class C colleges are more excessive than those in several of the Class A Plus schools. Some high-grade state university medical schools have fees as low as $50 to $60, whereas, some of the Class C schools charge fees of from $100 to $200, so that the plea for the continued existence of a low-grade medical school is apparently more for the boy who is "poor" in scholarship rather than poor in purse. Why should a student spend his time and money in a low-grade college when in the same time and with even less money he can attend one of the best equipped colleges?

It is the state boards which have the legal power in connection with low-grade medical schools. On the action taken by state boards will depend whether this country is going to be relieved of the disgrace of longer tolerating medical schools which admit poorly prepared students, which lack the means to provide the essential well equipped laboratories and expert teachers, or which do not possess ample dispensary and hospital facilities. In other words it is up to the state licensing boards, so far as legal power has been given them, to say whether the future output of physicians in this country shall be thoroughly trained, or whether the supply is longer to be contaminated by the ill-trained output from the low-grade colleges. The public has the right to expect that only properly trained physicians will obtain the license to practice.

*Report given at the Ninth Annual Conference of the Council on Medical Education, Chicago, Feb. 24, 1913.

CHART 1—MEDICAL COLLEGES; QUANTITY VS. QUALITY

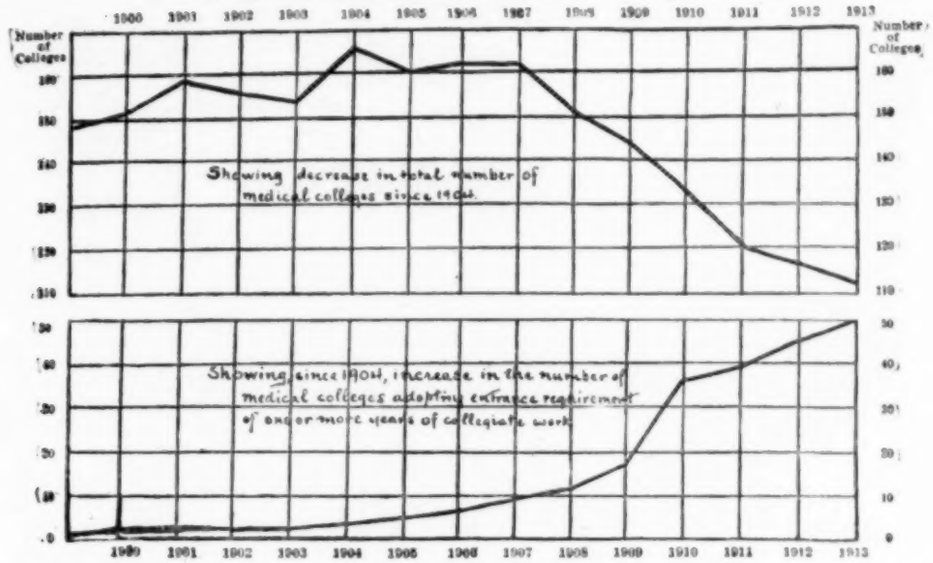

1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913
Number of Colleges
Showing decrease in total number of medical colleges since 1904.
Showing, since 1904, increase in the number of medical colleges adopting entrance requirement of one or more years of collegiate work.

Chart 1 shows the increase in the number of colleges which have adopted higher standards of admission. In 1904 there were only four medical schools requiring for admission any work above a high-school course and of the others, the majority were practically admitting all who applied. Since that year, however, through agitation and through publicity given to the need and importance of higher requirements, the number has been rapidly increased, so that we now have fifty schools which are exacting these higher requirements. In the last few weeks several other colleges have announced the adoption of the higher standard, making a total of about sixty medical schools which have adopted the higher preliminary requirement.

CHART 2—STATE REQUIREMENTS OF PRELIMINARY EDUCATION

Minimum required for those who secure licenses to practice

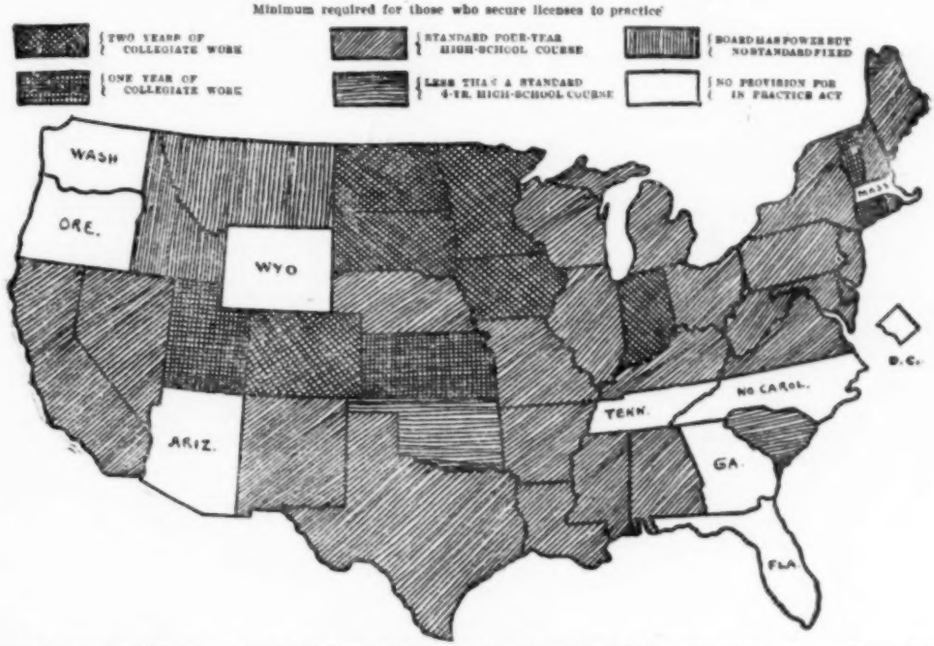


Chart 2 refers to the requirements of preliminary education by the various state licensing boards. There are six states which have adopted as a minimum requirement two years of collegiate work. These states are, Minnesota, North Dakota, South Dakota, Colorado, Indiana and Iowa. Four others, Connecticut, Kansas, Utah and Vermont, have adopted the one-year requirement and at the present time several other states are on the verge of making changes. There are twenty-five states in which the legal requirement is a standard four-year high-school education, these being:

Alabama	Kentucky	Michigan	Nevada	New York	Texas
Arkansas	Louisiana	Mississippi	New Hampshire	Ohio	Virginia
California	Maine	Missouri	New Jersey	Pennsylvania	West Virginia
Delaware	Maryland	Nebraska	New Mexico	Rhode Island	Wisconsin
Illinois					

In Oklahoma the law specifically states that the standard is that of the Association of American Medical Colleges. That was all right since that required completion of a standard four-year high-school course, but another clause was inserted making legal the standard of the Southern Medical College Association which represented only two years or less of high-school work. In three states, Idaho, Montana and South Carolina, the practice acts give the boards authority to fix the standard of preliminary education, but no such standards have as yet been announced. In ten states no provision for preliminary education is made by the medical practice act. These states are:

Arizona	Florida	Massachusetts	Oregon	Washington
District of Columbia	Georgia	North Carolina	Tennessee	Wyoming

In a chart presented at our conference five years ago, it will be remembered, there were eight states, four of these being in the South, which did not require that before being admitted to the examination for a license to practice medicine every candidate must have graduated from a reputable medical college.

CHART 3—STATES REQUIRING THAT APPLICANTS BE GRADUATES FROM A MEDICAL COLLEGE.

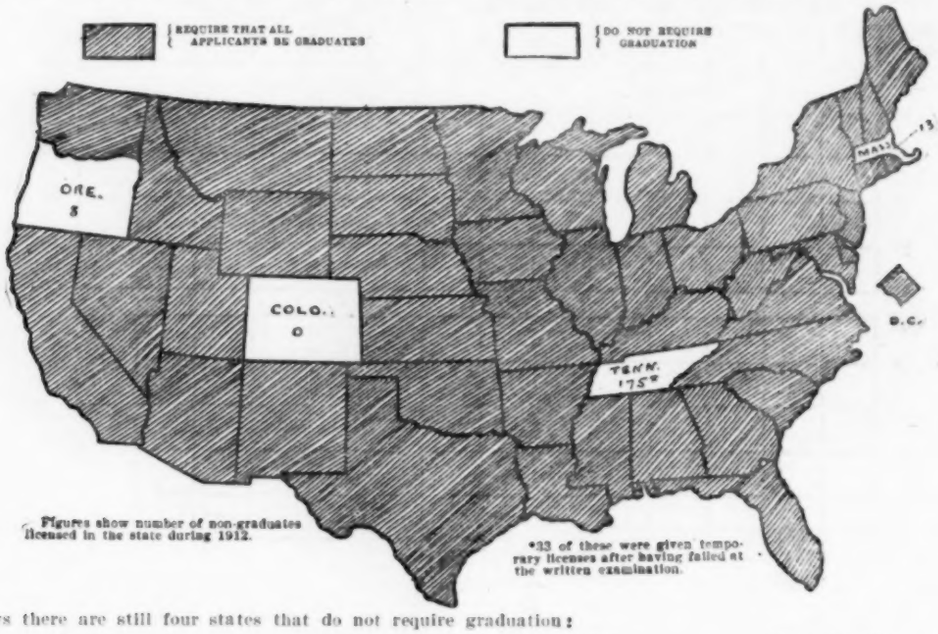

REQUIRE THAT ALL APPLICANTS BE GRADUATES
DO NOT REQUIRE GRADUATION
ORE. 8
COLO. 0
TENN. 175*
MASS. 13
D.C.
Figures show number of non-graduates licensed in the state during 1912.
*33 of these were given temporary licenses after having failed at the written examination.

Chart 3 shows there are still four states that do not require graduation:

Oregon	Tennessee	Colorado	Massachusetts

The figures show, however, that in Colorado no non-graduates were licensed in 1912. In Oregon there were eight and in Massachusetts only thirteen licensed. The darkest record was in Tennessee where 175 non-graduates, nearly half of the total number licensed in that state during the year, were non-graduates.* Since it is "always darkest just before day" so it is hoped the vigorous efforts now being made to amend the practice act in that state will be successful and that this disgrace of registering partly trained medical men will be forever removed.

CHART 4—STATE BOARDS HAVING AUTHORITY TO REFUSE RECOGNITION OF LOW GRADE MEDICAL COLLEGES

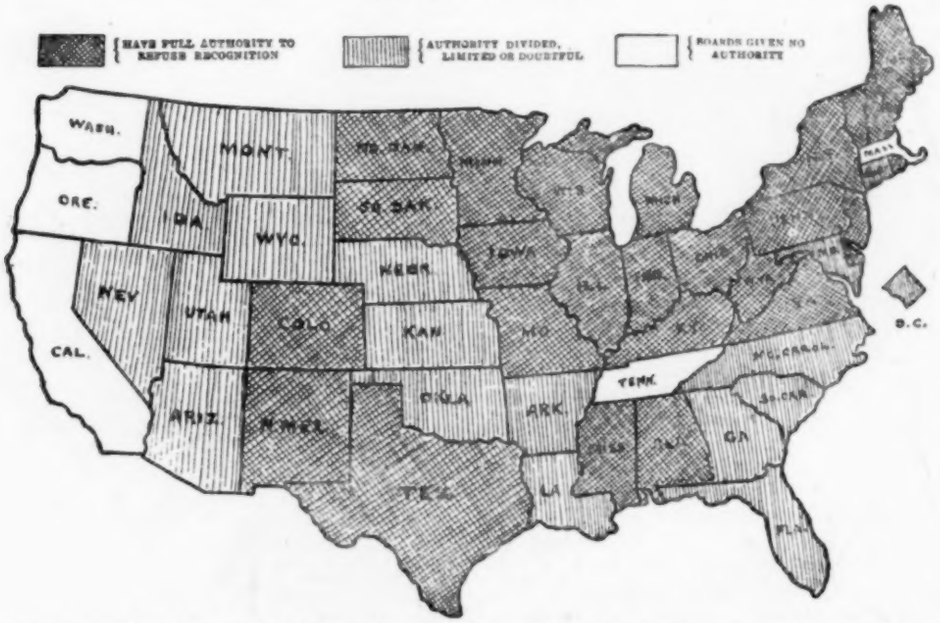


Chart 4 shows that according to our latest information the licensing boards in twenty-seven states have full authority to refuse recognition to low-grade medical colleges. These states are:

Alabama	Iowa	Mississippi	New Mexico	Rhode Island	West Virginia
Colorado	Kentucky	Missouri	New York	South Dakota	Wisconsin
Delaware	Maine	Montana	North Dakota	Texas	
Illinois	Michigan	New Hampshire	Ohio	Vermont	
Indiana	Minnesota	New Jersey	Pennsylvania	Virginia	

In each of those states there is a single board having complete or entire control of the situation. They can refuse recognition to any college which in the opinion of the board is not worthy of such recognition. There are seventeen states (counting the District of Columbia) in which authority to refuse recognition to low-grade medical colleges is divided with other boards or otherwise limited or doubtful. These states are:

Arizona	District of Columbia	Idaho	Maryland (2 Boards)	North Carolina	Utah
Arkansas (3 Boards)	Florida (3 Boards)	Kansas	Nebraska	Oklahoma	Wyoming
Connecticut (3 Boards)	Georgia (3 Boards)	Louisiana (2 Boards)	Nevada	South Carolina	

There are five states—California, Massachusetts, Oregon, Tennessee and Washington—which have no legal power to refuse such recognition.

CHART 5—STATES HAVING MEDICAL COLLEGES

(Showing location of those rated in class C by the Council on Medical Education)

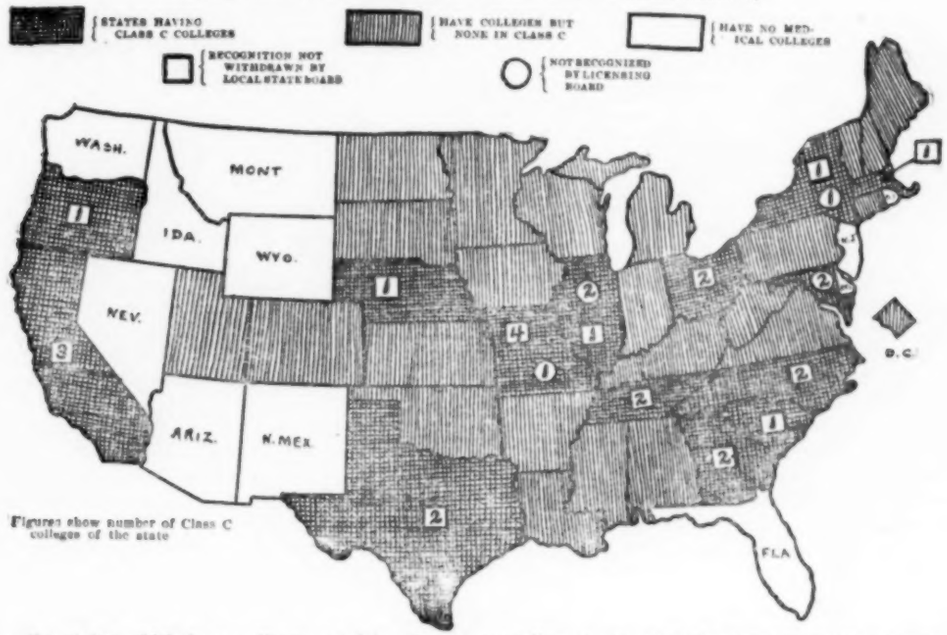


Chart 5 shows the states which have colleges rated in Class C according to the third classification of the Council on Medical Education. The figures in the squares show the Class C colleges from which recognition has not been withdrawn in their home state, while those in circles give the number from which the local board has withdrawn recognition. States having Class C colleges not penalized by the local board:

California 3	Massachusetts 1	New York 1	Oregon 1
Georgia* 1	Missouri 4	North Carolina 2	Tennessee 2
Illinois 1	Nebraska 1	Ohio 2	Texas 2

*Recognized by the Eclectic Board.

Total 21.

States having Class C colleges reported as not recognized by the local licensing boards are:

Georgia 1	Illinois 2	Maryland 2	Missouri 1	New York 1

Total 7.

CHART 6—REPORTED NON-RECOGNITION OF LOW-GRADE COLLEGES

(Compare with Chart 4)

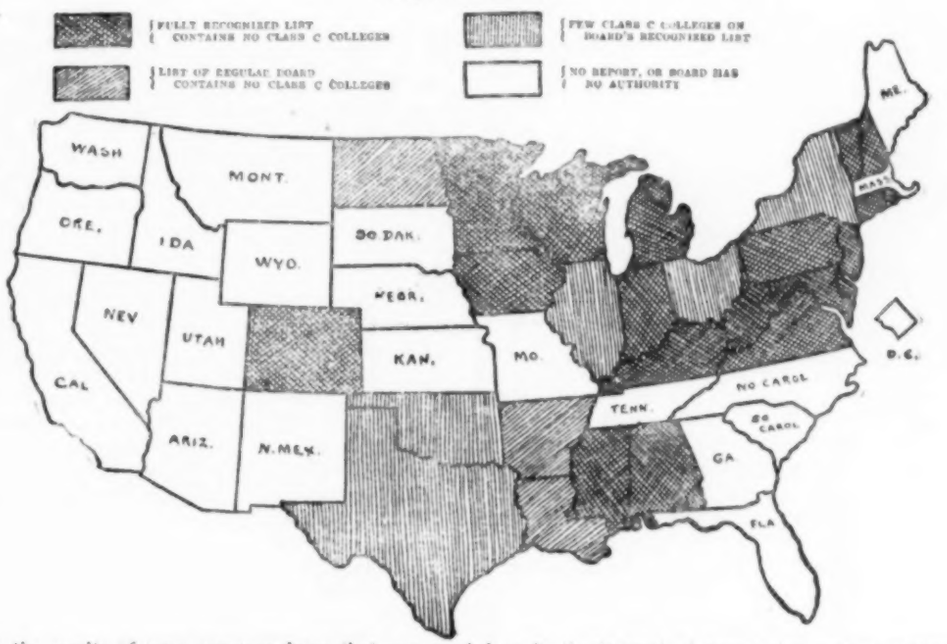


Chart 6 shows the results of some correspondence that was carried on in the interest of prospective medical students, to ascertain what states were recognizing Class C medical schools. Some of the boards are apparently guided more or less by the Council's ratings while others—to be preferred—have prepared their own lists. From this investigation it is apparent that no medical colleges rated in Class C are fully recognized by the following state boards:

Alabama	Delaware	Maryland (Reg.)	New Hampshire	Pennsylvania	Virginia
Arkansas (Reg.)	Iowa	Michigan	New Jersey	Rhode Island	West Virginia
Colorado	Kentucky	Minnesota	North Dakota	Vermont	Wisconsin
Connecticut (Reg.)	Louisiana (Reg.)	Mississippi			

In the following states it is apparent that the majority of Class C medical colleges are not fully recognized:

Illinois	Indiana	New York	Ohio	Oklahoma	Texas

It will be seen therefore by comparing this chart with Chart 4, that practically all state boards having authority to do so have taken more or less vigorous action in regard to low-grade medical colleges.

Book Notices

THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the Use of Practitioners and Students of Medicine. By William Osler, Bt., M.D., F.R.S., Regius Professor of Medicine, Oxford University. Eighth Edition, Largely Rewritten and Thoroughly Revised, with the Assistance of Thomas McCrae, M.D., Professor of Medicine, Jefferson Medical College, Philadelphia. Cloth. Price, $5.50. Pp. 1225. New York: D. Appleton & Co., 1912.

This classic in medical literature has undergone another of its periodical revisions in pursuance of the author's expressed ambition to keep it up to date. The rapid advances in the knowledge of many diseases, particularly the infectious diseases, has necessitated many changes which the author with able assistants has endeavored to make. The subjects have been rearranged and in many instances have been almost entirely rewritten. The publishers have changed the size of the page and have made the margins narrower. In this respect the book is not improved in appearance. It would be presumptuous to attempt to criticize the text of this standard work on practice, yet there are many who will still feel that the matter of treatment is regrettably brief. The enormous experience and the good judgment of the author, which have made the work so valuable as it is, would seem to fit him especially to guide more definitely the general practitioner in his daily work.

FORTSCHRITTE DER NATURWISSENSCHAFTLICHEN FORSCHUNG. Herausgegeben von Prof. Dr. Emil Abderhalden, Direktor des physiologischen Institutes der Universität Halle a.S. Volume VII. Paper. Price, 15 marks. Pp. 268, with 106 illustrations. Berlin: Urban & Schwarzenberg, 1913.

This volume of the "Fortschritte" is extremely interesting to physicians occupying themselves with scientific subjects. Of especial value is the monograph on comparative neurology and psychology, by Dr. V. Franz, in which some revolutionary statements are made. To mention only one: The size of the brain and the depth of its convolutions depend less on the psychic qualities of the animal possessing them than on its total body-weight. The entire monograph constitutes a frank attempt to overthrow stereotyped statements still in need of proof. Another monograph equally interesting to physicians is the one contributed by Dr. Hermann Klaatsch on the human foot and erect locomotion, in which he discusses the origin and acquisition of human characteristics. This is a profound biologic study written in non-technical language.

EXPERIMENTAL STUDIES OF MENTAL DEFECTIVES. A Critique of the Binet-Simon Tests and a Contribution to the Psychology of Epilepsy. By J. E. Wallace Wallin, Ph.D., Director of the Psychologic Clinic, School of Education, University of Pittsburgh. Educational Psychology Monographs, No. 7. Cloth. Price, $1.25 net. Pp. 155, with illustrations. Baltimore: Warwick & York, 1912.

This monograph embodies the results of a critical study of the Binet-Simon scale when applied to a colony of over three hundred epileptics. Dr. Wallin finds that the scale needs further development and correction before it can become generally applicable to routine mental testing. He further discovered that though there are exceptions, yet the great majority of those suffering from epilepsy fail to reach normal mental maturity and fall into the upper group of the feeble-minded, the so-called moron class. The latter fact he could ascertain only by a faithful application of the Binet-Simon scale, imperfect as it is. He believes the test to be in its experimental stage, but capable of yielding more positive results than any method hitherto followed.

EIN WEITERER BEITRAG ZUR GLAUKOM-FRAGE. By Dr. W. Wagner. Paper. Price, 1.50 marks. Pp. 45. Berlin: S. Karger, 1912.

This is the personal experience of a physician who gives the symptoms, progress and treatment of glaucoma in his own eyes. While the recital really adds nothing to our knowledge of that formidable disease, yet it constitutes an interesting contribution to the literature by a serious student of the subject. He strongly advocates the employment of iridectomy as the method most likely, in the average run of cases, to stay the advance of the malady.

Medicolegal

Validity and Construction of Provisions Relative to Itinerant Physicians

(Kirk vs. State (Tenn.), 150 S. W. R. 83)

The Supreme Court of Tennessee holds constitutional section 4 of chapter 543 of Acts of 1907, amending chapter 78 of Acts of 1901, which section provides that "it shall be unlawful for any itinerant physician, or vendor of any drug, nostrum, ointment, or application of any kind intended for the treatment of disease or injury, to sell or apply the same," etc. The court says that the object of the legislature in enacting these statutes—the original and that amending it—was to regulate the practice of medicine and surgery in the state of Tennessee, and the legislation in each act must be confined to this object. It was not intended by the general assembly to prohibit the sales of drugs, etc., but to forbid the sale and application of them. The disjunctive "or" is used in the statute in the sense of the conjunctive "and" between the words "sell" and "apply." This is clear from the subject expressed in the original act, "The regulation of the practice of medicine and surgery," and the body of both acts. There was no intention to go beyond the subject expressed and to legislate concerning the sale of drugs, nostrums, etc.

Reading the word "and" instead of "or" in the statute preserves it from the vice of containing two subjects, that of practicing medicine and that of engaging in the sale of medicine. Construing the act only to prohibit the sale and application of drugs, etc., the provision in question applies strictly and solely to the practice of medicine and surgery, the subject of the act expressed in the title. This construction has been given the word "or" in a similar statute enacted in Louisiana.

The court is of the opinion, too, that there is no unlawful discrimination in the provisions of the statute, and that it is not subject to the objection that it is vicious and arbitrary class legislation. The court thinks, on the contrary, that the distinctions made between physicians, surgeons, and vendors who have an established place of business, where they are known to the public and all who may be reasonably expected to become their patients and patrons, and itinerant physicians and vendors of drugs, medicines, appliances, etc., intended for the treatment of disease or injury, is supported by a natural and reasonable basis, and has reasonable relation to the subject-matter. The object of the prohibition is to prevent physicians and vendors who have no fixed place of business, are unknown to those to whom they tender their services and medicine, and have no reputation for professional skill, honesty, and fair dealing to maintain, from traveling about the country and defrauding the people by working on the fears and hopes of the unfortunate and afflicted. It is well known that itinerant physicians and vendors of medicines, nostrums, appliances, etc., of this character are generally and as a class unreliable, and that the money which they obtain from an unfortunate class of people is without consideration. Statutes for this purpose, similar to the one under consideration here, have been enacted in most of the states, and their constitutionality generally sustained.

The specific provision of the statute which the plaintiff in error Kirk was charged with violating was that which prohibits itinerant physicians and vendors, by writing, printing, or other methods, to profess to cure or treat disease or deformity by drugs, manipulation, or other expedient. The object of this provision is to prevent such persons from practicing the frauds prohibited in the first clause of the sentence. It is well known that fakers of the kind here legislated against usually advertise their services and medicines, and that advertising, if not altogether necessary, greatly aids them in perpetrating their fraudulent practices on the people. It is well settled that the legislature may enact laws which tend to prevent the perpetration of fraud, although the act prohibited is otherwise harmless. This provision has usually been contained in the statutes passed by other states for the suppression of itinerant physicians and nostrum-vendors, and generally sustained.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, MINNEAPOLIS, JUNE 17-20

Alabama State Medical Association, Mobile, April 15-18.
Amer. Assn. of Genito-Urinary Surgeons, Washington, May 6-7.
Am. Assn. of Pathologists and Bacteriologists, Washington, May 6-8.
American Climatological Association, Washington, May 6-7.
American Dermatological Association, Washington, May 6-8.
American Gastro-Enterological Association, Washington, May 5-6.
American Gynecological Society, Washington, May 6-8.
American Laryngological Association, Washington, May 5-7.
American Laryn., Rhin. and Otol. Society, Washington, May 8-10.
American Neurological Association, Washington, May 5-7.
American Ophthalmological Society, Washington, May 6-7.
American Orthopedic Association, Washington, May 6-8.
American Otological Society, Washington, May 6-7.
American Pediatric Society, Washington, May 5-7.
American Society of Tropical Medicine, Washington, May 6-8.
American Surgical Association, Washington, May 6-8.
American Therapeutic Society, Washington, May 5-6.
American Urological Association, Boston, April 15-17.
Association of American Physicians, Washington, May 6-7.
California State Medical Society, Oakland, April 15-17.
Congress Am. Phys. and Surg. of N. America, Washington, May 6-7.
Florida Medical Association, Miami, May 13-15.
Georgia State Medical Association, Savannah, April 16-18.
Iowa State Medical Society, Des Moines, May 7-9.
Kansas Medical Society, Topeka, May 7-8.
Louisiana State Medical Society, Baton Rouge, April 22-24.
Maryland Medical and Chirurgical Faculty, Baltimore, April 22-24.
Mississippi State Medical Association, Vicksburg, April 8-10.
Missouri State Medical Association, St. Louis, May 13-15.
Montana State Medical Association, Great Falls, May 14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 8-9.
New York State Medical Society, Rochester, April 29-May 1.
North Dakota State Medical Association, Minot, May 7-8.
Oklahoma State Medical Association, Enid, May 13-15.
South Carolina State Medical Association, Rock Hill, April 15-17.
Tennessee State Medical Association, Nashville, April 8-10.
Texas State Medical Association, San Antonio, May 6-8.

MEDICAL SOCIETY OF THE MISSOURI VALLEY

Twenty-fifth Semiannual Meeting, held at Kansas City, Mo., March 20-21, 1913

The Second Vice-President, DR. B. T. QUIGLEY, Mound City, Mo., in the Chair.

Genital Tuberculosis in the Female

DR. W. O. HENRY, Omaha: Abortions, gonorrhea, and other inflammations, injuries or contusions, and a general run-down or anemic condition may be predisposing factors in the origin and development of genital and peritoneal tuberculosis. We should be more careful and thorough in examinations of patients lest we overlook the true conditions at the time when they are most amenable to treatment. It behooves us to safeguard the public by teaching prevention and encouraging the afflicted by a favorable prognosis, unless other serious complications are also found.

Management of Genital Tuberculosis in the Female

DR. PALMER FINDLEY, Omaha: Genital tuberculosis in woman is rarely a direct cause of death. The fatal issue is usually determined by a primary lesion in the lung or bowel. In at least 50 per cent. of cases there are some symptoms directly chargeable to the tuberculous lesion in the genital organs. It follows that in fully half the cases there is no urgent indication for operative interference. Inasmuch as genital tuberculosis is rarely primary, we must discriminate, if we can, between the symptoms directly due to the primary lesion and those due to the secondary lesion in the genital organs. The symptoms referred to the genital organs will usually yield to palliative measures. A radical operation is rarely justified for relief from symptoms caused by genital tuberculosis. There is danger in operative interference from the awakening of a latent primary focus, from the high primary mortality in these cases and from the possible sacrifice of organs, inasmuch as spontaneous healing is a possibility as in tuberculosis elsewhere in the body. In tuberculous peritonitis the cause of death in 90 per cent. of cases is chargeable to the primary focus. In operating on patients with tuberculous peritonitis it is well to remove the tubes when infected, in order to cut off the source of supply to the peritoneum. The utmost conservatism should be exercised in dealing with ovaries and uteri in young women. The exudative type of tuberculous peritonitis is alone favorable to operation. One should not operate in the presence of a fever or an active primary focus in the body. Medicinal and hygienic treatment is not to be underrated in the management of these cases. In the absence of severe symptoms directly referred to the lesion in the genitalia or peritoneum, operative measures should give way to the usual hygienic measures, at least for an extended trial.

DISCUSSION

DR. H. C. CROWELL, Kansas City, Mo.: In a large percentage of cases of tuberculosis of the genital organs the symptoms are very acute and pronounced. Whether the disease causes death immediately or not is probably open to question, but ultimately the majority of such patients, even with a local tuberculosis in the pelvis, succumb to the disease. I have had quite a number of cases in which there was no evident involvement of the lung; operative procedure has effected a perfect cure, and the patients have recovered without secondary involvement of other organs. About fifteen years ago a woman, aged 26, unmarried, came to me with what appeared to be a pyosalpinx. Examination of the discharge from the uterus did not demonstrate satisfactorily the nature of the infection, but we found large abscesses and ulceration in the posterior surface of the uterus; so extensive was the suppuration that I did a hysterectomy, and cleaned out everything thoroughly, and the woman made a perfect recovery.

DR. W. O. HENRY, Omaha: It would be a mistake to leave an active focus of tuberculosis in the pelvis or in any of the pelvic organs and expect by local treatment to get rid of it. Removal of the local focus is essential to the patient's recovery.

The Rôle of Tonus in the Digestive Canal

DR. JOHN M. BELL, St. Joseph, Mo.: Atony of the digestive tract exists in all gradations, from a mere slight delay in motility to absolute kinking and retention. The key-note of treatment, except in cases of more or less acute kinking, is the restoration of normal tone, not merely to the digestive canal, but to the body; not essentially drugging, but hygiene, diet, daily habits and all those measures which tend to restore vitality.

Diverticulitis of the Sigmoid

DR. ARTHUR D. DUNN, Omaha: The following symptoms, in the absence of evidence to the contrary, are presumptive of a diverticulitis: (1) alternating constipation and looseness of the bowels in an individual not previously much troubled in this respect, which are accompanied by fulness, soreness or colicky pain in the hypogastrium; (2) febrile manifestations, and a sharp neutrophilic leukocytosis; (3) frequency of and pain on urination in the presence of symptoms referable to the lower colon; (4) a palpable tumor mass, usually discovered by rectal examination, often sausage-shaped and extending to the left in close relationship to the sigmoid.

Membranous Pericolitis

DR. CHARLES RYAN, Des Moines, Ia.: My personal experience has been confined to twelve cases within the past eighteen months, only one of which would furnish special interest for a detailed description. The patient was a woman, aged 38, who presented symptoms of a chronic cholecystitis and chronic appendicitis. At operation there was found a well-developed membrane extending from a point about 3 inches above the caput coli to a point on the transverse colon 2 inches to the left of the median line; the transverse colon had been raised until it occupied a position approximating the anterior border of the liver, the gall-bladder covered, and the membrane spreading over the anterior surface of the stomach. The appendix was kinked, the distal end being incarcerated in a well-formed Lane's kink. Simple division of this extensive membrane and Lane's kink, with the application of sterile petrolatum to the latter, with appendectomy and cholecystotomy was the treatment. While she was greatly benefited, the symptoms did not

entirely disappear. The results in 12 cases at present are: complete cure, 4; great benefit, 3; recurrence to a variable degree, 3; 2 patients were operated on within the past week.

DISCUSSION

Dr. C. C. Conover, Kansas City, Mo.: I recall the case of a woman who had stenosis 3 inches to the left of the heptic flexure, with alternating constipation and diarrhea. She had been treated for neurasthenia for almost four years. She had symptoms of intestinal stenosis. The little band or pericolic membrane was removed, she recovered, and gained 25 pounds in weight.

Dr. Henry S. Munro, Omaha: With every method of treatment in this class of cases, a carefully regulated dietetic regimen, coupled with systematic exercise, must follow the operative procedure, no matter what it is.

Dr. E. W. Powell, Omaha: If we could get these patients to the internist early he could make the diagnosis and correct the condition before the patient reached the stage of the pathologic condition known as Lane's kink; but unfortunately the average patient does not consult the internist or the surgeon early.

Dr. John F. Binnie, Kansas City, Mo.: We have colons of all sorts and peculiar shapes tucked away in all sorts of ridiculous fashions, and yet they work exceedingly well. If we have a mobile cecum and a mobile (lowest) portion of the ileum, we have a loop of intestine which is pretty much in the same condition as the normal sigmoid, and the intestinal work can be carried on very well in that patient; but if we have a fixed ileum near the cecum, and a mobile cecum, then, of course, the cecum can pop around in various directions and produce temporary obstructions. In operating, I do not bother about ileac kinks and a mobile cecum very much unless I find them combined. In operative work, or in post-mortem work, when I have exposed the cecum and found it mobile, I have looked at the sigmoid and found it plastered down to the abdominal parieties. That, I think, is usually the case. Whether it is a congenital condition or not, I do not know, but I think many of these conditions are congenital.

Dr. William T. Reynolds, Kansas City, Mo.: A girl, aged 14, had trouble in the right side. We operated on her with the idea that we had to deal with appendicitis. We found the appendix comparatively normal, but she had a membrane at the head of the cecum. There was nothing to be observed in the formation of the membrane on the colon higher up. After operation she went home and was well for about six weeks. Since that time she had been having the same pain as formerly. We operated a second time and found a smooth, white glistening membrane high up on the colon which had formed in ten months.

Dr. Howard Hill, Kansas City, Mo.: We need more observation as to what causes these malformations or deviations of the colon. The looseness of attachment of viscera may be responsible primarily for angulation and things of that sort. When a patient has difficulty in propelling the contents of the intestinal tract onward, if it produces pain and great discomfort, that patient will consult a surgeon. There is no use in operating on the cecum alone, as in six or eight weeks these patients get into the same condition they were in before operation. We should do an ileosigmoidoscopy. The difference between an ileosigmoidoscopy and operations on the cecum and colon is that after an ileosigmoidoscopy the patient recovers slowly, but when he has become well he stays well.

Dr. M. J. Ford, Omaha: I wish to cite two cases. In one, on opening the abdomen we found the colon in proper anatomic position, but within an inch and a half of the cecum and caput coli; extending up over the colon for 3 inches was a distinct band running longitudinally across the colon, holding it down. This was released. The other patient was a girl, aged 22, who had the chain of symptoms which usually accompanies these cases, and was treated by various physicians for neurasthenia. On opening the abdomen I found I could not get to the head of the colon unless I broke through a number of adhesions to reach the pericolic membrane which extended clear over, and when I got down to where the appendix was I found it was normal, within a little sac, and was not adherent to the tissues around it.

Landry's Paralysis

Dr. E. M. Hummel, New Orleans: While no specific organism is likely to be proved the cause of Landry's paralysis, it seems that some condition of toxicity springing out of unwonted virulence of some one of the bacterial flora native to the body and operating under the auspices of lowered resistance will be settled on as the cause of this disease. One case I saw strongly supported this belief.

DISCUSSION

Dr. A. L. Skoog, Kansas City, Mo.: We know that with mental and physical fatigue infectious processes are more likely to be engrafted on the individual. I think that has been shown in some animal experiments, with no bacilli present.

Dr. C. R. Woodson, St. Joseph, Mo.: There can be no question but that there are cases of Landry's paralysis in which we have elevation of temperature and sphincter involvement. Some writers are disposed to believe that the disease is a polyneuritis. It has some characteristics, however, which are quite different from the ordinary types of polyneuritis and some types which are very much like it. The symmetrical symptoms are quite like those of polyneuritis.

Dr. C. C. Goddard, Leavenworth, Kan.: I recall the case of a prison physician who was apparently perfectly well up to a certain evening, when he reached out his hand to take hold of the ear of his dog and found he could not hold the ear. He tried several times to do so. Then he tried with the other hand and found he could hold the dog's ear all right. He tried to pick up different objects and hold them but could not do so. He could move and flex his fingers, but the next morning that arm (the left) was dead to the world. The other arm became involved. That day he thought he was bound to get out of bed. He threw himself out of bed and fell to the floor. My diagnosis was Landry's paralysis or acute ascending paralysis. The patient could move his feet in bed that day, but from that time he became completely paralyzed as to both sensation and motion. It started in the left arm, which is unusual, as it generally begins in the feet. His mind was perfectly clear; the pupils looked all right at the time he went to bed. He had no pain; he had to be catheterized; he could not pass urine voluntarily after the second day; after the fourth or fifth day paralysis of deglutition set in; the pulse became weaker and weaker; he gave a sighing respiration and died.

Dr. S. Grover Burnett, Kansas City, Mo.: Landry's paralysis involves the muscles of the legs, the trunk, the arms, the respiratory muscles and the throat muscles, and the story is usually ended. The patient does not die from toxemia, but from the want of air. He dies because he has become paralyzed as far as respiratory function is concerned. I have seen but one patient recover. It is a question whether or not I was correct in my diagnosis. Maybe I was not, but the patient recovered. The disease began in the lower extremities, took the usual course, extended up and involved the throat muscles. The paralysis was progressive from one six-hour period to another. In desperation I gave dram doses of fluidextract of ergot every three hours. Under the influence of the ergot the disease seemed to be checked; but we know that once in a while a few patients recover without treatment. Possibly this was one of those cases, or I was mistaken in my diagnosis.

Dr. Abraham Sophian, New York: From the studies that have been carried on during the past few years, particularly with reference to clinical and laboratory analyses, the relationship between Landry's paralysis and poliomyelitis has been established, and there is no question but that in some instances Landry's paralysis and poliomyelitis are one and the same disease. Poliomyelitis may affect any part of the central nervous system. The characteristic feature of Landry's paralysis is the ascending paralysis. The cerebrospinal findings in the two diseases are similar.

Discussion on Cancer

Dr. John F. Binnie, Kansas City, Mo.: Too much abuse has been poured on the unfavorable statistics after operative treatment for frank malignant disease in the matter of recur-

rence. I think that other terms should be used. After cutting out diseased tissue, if we have a reappearance of the disease within a comparatively short period, say after two or three years, it is a true reappearance of the disease, but it is not a recurrence. It means that some diseased tissue was left and still continues to grow; but when we have a true recurrence, things are somewhat different. If the growth appears again after a lapse of three years, why can it not be the original causes of the disease working again on a patient who has shown himself non-resistant to the noxious influence, so that we have a fresh incidence of the disease, not necessarily a recurrence?

DR. J. P. KANOKY, Kansas City, Mo.: When the disease is very malignant and affects the deeper tissue, the Roentgen ray will relieve, although it may not cure. In superficial ulceration or rodent ulcer, years ago I employed the actual cautery or the knife. Within the last few years I have used carbon dioxid snow. It is as efficacious as the cautery, and much pleasanter than the knife, and the cosmetic results are superior to both. Superficial cancer or so-called rodent ulcer can be treated with snow in my opinion with absolute success.

DR. H. M. LYLE, Kansas City, Mo.: There are some types of epithelioma which the carbon dioxid snow will cure, but I would not depend too much on it because it is too superficial in its action. In using the Roentgen ray there are several things that come up which the individual operator has to watch for in the way of protecting the patient. It has been my experience that it is well to begin with short treatments and give them often until you find just exactly how the patient is going to stand the treatment. Others give one or two large doses of from fifteen to thirty minutes' duration. I believe that does more harm than good.

DR. ROLLIN H. BARNES, St. Louis: I do not think that we are able to diagnose cancer of the colon early enough to expect the promising results which we can obtain from cancer in some other locations of the body, but we should carefully observe these patients who show the least indication of trouble in this region and always keep in mind cancer.

DR. W. O. HENRY, Omaha: Committees have been appointed by various societies in the United States to do what they can to enlighten the public about cancer of the uterus. Physicians who are abreast of the times, who attend regularly city, county, state and national meetings, are well informed, but there is a large class of practitioners who do not attend these society meetings, and who do not read up-to-date medical journals. These men need to be educated as well as the laity, and the way to do it is for every state society to have a publicity committee, backed by the authority of the society, to prepare proper articles for the daily press and for the weekly papers in every county.

DR. DONALD MACRAE, Council Bluffs, Ia.: This and other societies ought to take a strong stand with regard to a publicity campaign in educating the laity about cancer. In the country we see the majority of cases of cancer too late to do much, if any, good. The right time to operate on such patients is in the precancerous stage.

DR. H. C. CROWELL, Kansas City, Mo.: If one thing is of greater importance in regard to cancer than anything else, it is the education of the people. The average physician of the country is better informed on the scientific methods and procedures and the advanced treatment and advanced theories of cancer than he is on the diagnosis. I know from experience that patients are treated by one physician after another without a diagnosis of cancer having been made, when they should have been subjected to some means by which the diagnosis might have been made early enough to eradicate the cancer.

Cancer Information Committee

A committee composed of Drs. H. C. Crowell and Howard Hill, Kansas City; E. C. Henry, Omaha; Donald Macrae, Council Bluffs, and Daniel Morton, St. Joseph, was appointed to conduct a campaign of education to familiarize the public with the early manifestations of malignant disease in the interest of prompt diagnosis.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

March, V, No. 3, pp. 205-284

1 *Dietetic Treatment of Convulsions and Allied Conditions Occurring in Infants. C. G. Grulee, Chicago.
2 Significance of Pyloric Reflex in True and Pseudopyloric Stenosis in Infants. D. M. Cowie, Ann Arbor, Mich.
3 *Statistical Comparison of Mortality of Breast-Fed and Bottle-Fed Infants. W. H. Davis, Boston.
4 *Vulvovaginitis in Children. E. R. Spaulding, Boston.
5 Pancreatic Ferments in Infants in Acute Intestinal Indigestion (Alimentary Intoxication). A. F. Hess, New York.

1. **Dietetic Treatment of Convulsions in Infants.**—It is the general belief, says Grulee, that the calcium and magnesium salts act antagonistically to the sodium and potassium salts, the former tending to allay nervous irritability, the latter to increase it. When there is a relative increase of Ca and Mg over the Na and K, one would expect, following the reasonings on this subject, to have a decreased nervous irritability, while the opposite proposition would also be true. Grulee determined to approach the subject of spasmophilia from a somewhat different standpoint from that which has generally been taken in the past. He determined to endeavor to produce increased electrical irritability by the use of the sodium salts. Before doing this, however, a study of the metabolism of the inorganic salts in animals before and after thyroidectomy was made. In dogs in which a hyperirritability of the nervous system existed, as shown by the increased electrical irritability, and as produced by removal of the thyroid, there is no regular variation in the formula,

$$\frac{Ca}{Na} \text{ or } \frac{Ca+Mg}{Na+K}$$

before and after operation, as shown by metabolic experiment. While in three dogs thus examined there was apparently some support of the proposition that the quotient of this formula is increased during the period of hyperirritability of the nervous system; in the fourth dog no such reaction could be noticed. In estimating the salt content of the brains of five dogs, the first being a control, there was regularly found a decrease in the calcium content in the thyroidectomized animals. In one instance, however the

$$\frac{Ca}{Na}$$

formula — was less than that of the control animal.

No variation in electrical irritability nor severity of the convulsive period could be demonstrated by intraperitoneal injections of normal sodium and calcium salts in the quantity of 40 to 45 c.c. of sodium salts, and 2 to 4 c.c of calcium salts in twenty-four hours. Even under normal conditions, when carefully estimated, the electrical irritability in dogs varied quite widely. While food containing whey is distinctly irritating to spasmophilic infants, the sodium and potassium salts corresponding in quantity to those contained in the whey do not regularly produce the increased electrical irritability which one would expect were the sodium to be regarded as the irritating substance in the whey.

This failure of the sodium and potassium to produce results, Grulee says, may be explained either by the fact that the forms in which the sodium and potassium were given, i. e., NaCl and KCl, were not readily absorbed in the gastro-intestinal canal, or that these salts were not in themselves the irritating factors. The latter proposition would seem to be much more probable. These experiments therefore have brought little or no confirmation of the hypothesis that the increased electrical irritability in spasmophilia is the result of a disturbance of calcium and sodium equilibrium.

3. **Mortality of Breast-Fed and Bottle-Fed Infants.**—Of 736 babies, 533, or 72.4 per cent., were breast-fed, and 203, or 27.6 per cent., were bottle-fed. Davis estimates that 68 per cent. of all Boston babies between the ages of 2 weeks and 1 year

are breast-fed; that of Boston babies with Canadian mothers only 51 per cent. are breast-fed; of those with native mothers 59 per cent.; of those with Irish mothers 73 per cent.; of those with Russian and Polish mothers 79 per cent., and of those with Italian mothers 83 per cent. Seventy-four per cent. of the deaths of these infants were among bottle-fed babies, and those between the ages of 1 and 3 months show the highest mortality, especially those having mothers born in the United States. Therefore if 74 per cent. of infant deaths above the age of 2 weeks are among bottle-fed babies and only 32 per cent. of babies over 2 weeks are bottle-fed, then of such infants the bottle-fed is six times as likely to die as the breast-fed. During July and August, 1911, the number of deaths among the breast-fed infants was only slightly increased, while among the bottle-fed infants the mortality was trebled. The bottle-fed baby apparently is more susceptible to the communicable diseases or does not possess as much stamina as the breast-fed baby effectually to combat them. The same fact is apparent also in septicemia. Bronchopneumonia and pneumonia had a total of 309 deaths between two weeks and one year with 184 bottle-fed. It was especially in the study of diarrhea and enteritis that the terrible effects of bottle-feeding were revealed. There were in Boston in 1911, in infants between the ages of two weeks and one year, 621 deaths due to this cause, 534 of which were bottle-fed. Of infants reaching the age of two weeks, one in five dies before a year old if bottle-fed, while if breast-fed only one in thirty fails to reach the one year mark. This means that the deaths of these infants would be 60 per cent. less if all could be breast-fed.

4. **Vulvovaginitis in Children.**—For two years and a half the cases of vaginitis at the Children's Hospital in Boston have been treated at a special clinic. During the two years the individual cases have been studied and the attempt has been made to gain some progress in the treatment and knowledge of this very intractable disease. The purpose of Spaulding's article is to emphasize the following five points, which stand out clearly as the result of their experience and the experience of others: 1. The prevalence of the gonococcus as the etiologic factor in cases of vaginitis, and the unreliability of bacteriologic examination in all stages. 2. The total duration of the disease, including the long periods of latency. 3. The importance of the disease on account of its serious complications and sequelae. 4. Inefficiency of treatment at best. 5. The consequent importance of prophylaxis, both at home and in hospitals.

The treatment which has given the best results in their cases is local treatment plus vaccine treatment. The local treatment corresponds to the treatment given a case of specific ophthalmia and consists in a cleansing douche followed by the instillation into the vagina of some preparation of silver. The usual directions given the mother are to use a two-quart fountain syringe in which there is a saturated solution of boric acid, and to which the smallest rectal tip is attached. This is to be given three times a day for at least ten minutes, as warm as the child can stand it, and with hot water added to it, that the temperature may be kept up. Following this three times a day, either argyrol 25 per cent., or a solution of another silver salt 1 to 1,000, is instilled into the vagina with a small rubber ear syringe. Added to this treatment they have given gonococcic vaccine, beginning with doses of fifty million and increasing twenty-five million, until four hundred million is reached. The vaccine at present is being given once a week, but previously was given twice a week, but with less rapid increase in the dose.

They have used the gonococcus vaccine in thirty-five cases. Fourteen of these cases have been acute cases, and in this class have been included all cases with profuse discharge of a month's duration or less. Six have been subacute (from two to four months' duration); fifteen have been chronic. In all, there have been 399 injections, making an average of eleven doses for each case, while in reality some cases received as many as thirty-six injections. The average length of treatment for each child was three months, while some treatments extended over eight months. Twenty of these cases still had a discharge, in some cases intermittent, and in many cases very slight, when they were lost sight of. In seven cases there was still a positive smear, although the discharge had cleared up. In only six of the cases was there both negative smears and an entire clearing up of the discharge, and three of these had a return some time within two years. So that the vaccine has not proved a specific.

Annals of Surgery, Philadelphia

March, LVII, No. 3, pp. 305-448

6 *Myositis Ossificans Traumatica. W. B. Coley, New York.
7 *Sub-Temporal Muscle Drainage by Aid of Silver Wire Drainage Mats in Cases of Congenital Hydrocephalus. W. H. Hudson, Atlanta, Ga.
8 *Thyrogenic Origin of Exophthalmic Goiter. J. H. Jacobson, Toledo, O.
9 *Cheek Defect and Its Repair by Plastic Operation. J. S. Davis, Baltimore.
10 Temporary Arrest of Heart Beats Following Incision of Pericardium for Suppurative Pericarditis. A. H. Harrigan, New York.
11 Membranous Pericolitis and Allied Conditions of Ileocecal Region. J. N. Jackson, Kansas City, Mo.
12 Carcinoma of Papilla of Vater. G. W. Outerbridge, Philadelphia.
13 Tendon Fixation. W. E. Gallie, Toronto, Can.
14 End Result of Excision of Elbow for Tuberculosis. T. W. Todd, Manchester, Eng.
15 *Arrest of Hemorrhage from Bone by Plugging with Soft Tissues. G. T. Vaughan, Washington, D. C.
16 Operating Table for Use in Animal Research. K. Stebbins, New York.

6. **Myositis Ossificans Traumatica.**—Various conditions may simulate myositis ossificans, particularly in the early stages, e. g., contusion, hematoma, myositis, periostitis, periarthritis, syphilitic tumors; but all of these conditions, Coley says, can be differentiated by means of a careful examination aided with a good roentgenogram. In periostitis and osteomyelitis, there usually is elevation of temperature, local tenderness, severe pain which is worse at night. Myositis is prone to develop in certain muscles which are seldom the site of syphilitic disease, and the Wassermann test will furnish an additional aid in differentiating the conditions. On the other hand, the age of the patients (usually young adults) and the fact that the tumor developed shortly after an injury furnish a history almost identical with that observed in sarcoma. In many cases, too, there is a striking similarity in the roentgenogram between the two diseases.

In Coley's first case, the roentgenogram had been examined by at least half a dozen roentgenologists and all pronounced the lesion sarcoma. Careful examination, however, of the roentgenograms which Coley has been able to observe personally shows this important difference: In myositis ossificans the sharp outline, corresponding to the junction of the tumor with the bone, is always present, while in sarcoma it is less distinct except in the very early stages of the disease. It was this feature which influenced him chiefly in making the diagnosis of myositis ossificans in the first case.

In the second case the same clear line of differentiation is observed in the earlier picture, although it is not so distinct in the later. Coley has seen but one case of periosteal sarcoma in which this was not true, and this happened to be a case of extremely rapid growth, apparently sarcoma, in a young adult, a woman of nineteen. The roentgenogram taken about a month after the beginning of the tumor showed a clear line without any roughness or indentations, which could easily be mistaken for myositis ossificans. In this case, however, there was the absence of a severe injury which is almost always the exciting cause in myositis ossificans, which furnished an important aid in making the diagnosis.

A further and very important point, which Coley says he has not seen noted in other articles, is the marked difference in the consistence of the tumors as determined by palpation.

In myositis ossificans the consistence is much harder than in sarcoma; furthermore, it is almost always uniform in character, whereas in sarcoma it is very apt to be soft in some places and harder in others, but there is never the bony hardness that is typical of myositis ossificans. The pain is another

important differential symptom. In sarcoma there is rarely pain in the early stages, unless the tumor is situated near some important nerve, whereas in myositis ossificans pain is much more apt to be a feature in the early development of the disease. Furthermore, the early disability of the neighboring joint, as usually observed in myositis ossificans, has been seldom noted in sarcoma in the early stages. Flexion of the knee is almost lost or greatly limited, and this may occur very soon, a few days after the injury, in myositis ossificans.

The clinical history together with the characteristic features already enumerated will, in most cases, enable one to render a correct diagnosis of myositis ossificans; yet the great importance of making an early and absolutely certain differentiation from sarcoma, in Coley's opinion, justifies an early exploratory operation and removal of sufficient material for a microscopic examination. This is especially true if the tumor is located along the shaft of the bone and not in the neighborhood of a joint. In case the patient is unwilling to submit to an exploratory operation, very careful and frequent observations will soon determine the true character of the disease. If it is sarcoma, there will be steady and fairly rapid increase in size; if myositis ossificans, but very slow increase in size, if any, is noted.

7. **Subtemporal Muscle Drainage.**—In cases of congenital hydrocephalus in which drainage underneath the scalp is attempted Hudson has found a vast additional drainage capacity by using the under surface of the temporal muscle for the absorption surface by inserting under this muscle silver wire drainage mats. Where this is to be attempted the operation should be done in the following manner: The usual point for perforating the skull dura and brain, posterior and above the right ear is selected. An incision about 2½ inches long, with its curve in a backward direction, is made down to the temporal muscle. A point about an inch in front of the curved incision is selected, and the fibers of the temporal muscle separated at this point. A flat separator with its point hugging the bone closely is pushed in every direction to its line of insertion under the entire skull area of the temporal muscle. Then the skull is opened with a self-stopping spiral perforator, its bottom cleared with the smallest size self-stopping burr.

The dura is then split the full extent of the opening in the skull. The two edges of the dura are then caught with mosquito forceps and the incision held open as far as possible. Through this opening a long, dull-pointed ventricular puncturing tube is inserted into the brain until the cerebrospinal fluid flows from its open end. The depth is read off on the side of the tube, which is marked in quarter inches. The permanent drainage tube is then cut to its proper measured length, and then slipped over the puncturing tube and carefully rotated to its proper permanent location in the brain, the two lateral fixation wires being carefully preserved. The silver drainage mat, which was fixed under the temporal muscle immediately after the muscle was separated from the bone, is now fixed in position, and the fixation wires of the permanent tube carefully twisted around the central ring of the drainage mat. The temporal muscle is then carefully sewed over the mat and tube with the finest possible black silk. The incision in the scalp is also closed with the finest possible black silk.

This operation must be done under the strictest aseptic precautions, with the use of new rubber gloves and the most careful sterilization of the patient's scalp. A loose dressing finished with plaster-of-Paris bandages should be applied in such manner that no direct pressure is applied over the operation wound or the temporal region of the operated side. The greatest possible accuracy and delicacy of operative procedure should be observed.

8. **Thyrogenic Origin of Exophthalmic Goiter.**—From a review of the experimental and clinical evidences relating to the thyroid origin of exophthalmic goiter by Jacobson he draws the following conclusions: Exophthalmic goiter can and has been produced experimentally in lower animals by the injection of thyroid pressure fluid (Klose), by implantation of the thymus (Bircher), and by the injection of the macerated thyroid (Baruch). Symptoms closely resembling exophthalmic goiter can be produced in animals by thyroid feeding.

The evidence at hand indicates a close relationship between the thymus and thyroid. That the symptoms of exophthalmic goiter are due to either an excess or perverted secretion of the thyroid, with the primary disturbance existing in the thymus, the action of the thyroid being that of a "multiplicator" according to the theory of von Mikulicz. Exophthalmic goiter has been produced in man by the excessive administration of thyroid extracts and preparations of iodin. That there are changes in the thyroid, chemically, macroscopically and microscopically, which are characteristic for exophthalmic goiter. Typical exophthalmic goiter or symptoms of hyperthyroidism (so-called exophthalmic goiter) occurs after or in connection with other affections of the thyroid, such as simple and adenomatous goiter, cancer and inflammations. That there is a characteristic blood-picture in exophthalmic goiter which disappears after the surgical removal of a sufficient amount of the diseased thyroid tissue. The successful treatment of exophthalmic goiter by measures directed toward the thyroid itself, as well as by serum therapy, proves the thyroid origin of the disease. Exophthalmic goiter can be cured by the surgical removal of portions of the gland in approximately 70 per cent. of all cases.

9. Published in the *Old Dominion Journal of Medicine and Surgery* for February, and abstracted in THE JOURNAL, March 22, p. 944.

15. **Arrest of Hemorrhage from Bone.**—The method to which Vaughan first called attention ten years ago consists in cutting a fragment of soft tissue, muscle or fascia, preferably muscle, from any convenient place in the field of operation and applying the fragment to the bleeding surface or edge of the exposed, broken or cut bone by means of the fingers. If the tissue does not adhere at once it should be rubbed into the bleeding area by some suitable instrument, as a knife handle, dissector or chisel, so that the vascular openings in the bone become plugged with little fragments of soft tissue. The advantages, he says, are obvious—the material is always present, it does not act as a foreign body, and, according to Vaughan's experience, it is always efficient.

Boston Medical and Surgical Journal

March 20, CLXVIII, No. 12, pp. 409-448

17 The Registered Midwife: A Necessity. E. F. Cody, New Bedford, Mass.
18 Midwife in Massachusetts: Her Anomalous Position. J. L. Huntington, Boston.
19 Seasonal Variation of Symptomatology of Pulmonary Tuberculosis. N. B. Burns, North Wilmington, Mass.
20 Collection of Facts, Ideas and Theories Relating to Diverse Elements that Contribute to Success in Treatment of Joint Diseases. Relationships Between Visceral Ptosis and Arthritis. Comparisons Between Mild Intestinal Toxemias and Gout. H. W. Marshall, Boston.

Bulletin of Manila Medical Society

January, V, No. 1, pp. 1-11

21 Basic Principle of Psychotherapy and Identity of All Systems of Mental Healing. R. E. L. Newberne, Manila, P. I.

Canadian Medical Association Journal, Toronto

March, III, No. 3, pp. 167-260

22 Prostatectomy-Suspension of Bladder. G. E. Armstrong, Montreal, Can.
23 Penalties of Late Diagnosis of Diseases of Urinary Tract. G. S. Gordon, Vancouver, B. C.
24 Fallacies of Existing Fatality Rates. H. W. Hill, London, Ont.
25 Municipal Health Work Pertaining to Infant Welfare. R. E. Wodehouse, Fort William, Ont.

Colorado Medicine, Denver

March, X, No. 3, pp. 71-107

26 Practical Considerations in Prostatic Surgery. W. N. Wishard, Indianapolis, Ind.
27 Deviated Nasal Septum—Its Influence on General Health; Surgical Treatment. A. C. Magruder, Colorado Springs.
28 Recent Advances in Cerebral Localization. G. A. Moleen, Denver.
29 The Friedmann "Cure." P. Hillowitz, Denver.

Indiana State Medical Association Journal, Fort Wayne

March 15, VI, No. 3, pp. 99-146

30 Relation of Defective Heart Muscle to Valvular Symptoms. S. E. Earp, Indianapolis.
31 Defective School Child. O. B. Nesbit, Valparaiso.
32 Artificial Infant-Feeding with Special Reference to Stool Examination. O. N. Torian, Indianapolis.
33 Case of Tuberculous Ulcer of Ileum and Cecum. M. F. Porter, Ft. Wayne.

Journal of Infectious Diseases, Chicago

March, XII, No. 2, pp. 127-275

34 *Relation of Calcium to Anaphylaxis. J. H. Kastle, D. J. Healy and G. D. Buckner, Lexington, Ky.
35 *Isoagglutination in Man and Lower Animals. M. Fishbein, Chicago.
36 Interagglutination Experiments with Various Strains of Sporothrix. D. J. Davis, Chicago.
37 *Statistical Study of Streptococci from Milk and from Human Throat. E. C. Stowell, C. M. Hilliard and M. J. Schlesinger, Dublin, N. H.
38 *A Motile Curved Anaerobic Bacillus in Uterine Discharges. A. H. Curtis, Chicago.
39 Conjunctival Reaction for Glanders. (Ophthalmic Test.) K. F. Meyer, Philadelphia.
40 *Fusiform Bacilli Associated with Various Pathologic Processes. G. F. Dick, Chicago.
41 Fusiform Bacilli. Isolation and Cultivation. C. Krumwiede and J. Pratt, New York.
42 *Two Methods for Obtaining Virus of Rabies, Freed from Cells of Host and from Contaminating Organisms, and Application of These Methods to Other Filterable Viruses or Glycerin-Extracts. D. W. Poor and E. Steinhardt, New York.
43 Studies on Virus of Hog Cholera. W. E. King, F. W. Baeslack and G. L. Hoffmann, Detroit, Mich.
44 *Tuberculosis of Stomach with Extensive Tuberculous Lymphangitis. K. W. Dewey, Chicago.
45 Behavior of Tubercle Bacillus Toward Fat-Dyes. H. Sherman, Chicago.
46 Intra-Vitam Staining of Tuberculous Guinea-Pigs with Fat-Soluble Dyes. H. J. Corper, Chicago.

34. **Relation of Calcium to Anaphylaxis.**—As a result of their experiments the authors conclude: first, that a 5 per cent. solution of calcium chlorid used subcutaneously is much too irritating to allow of a fair estimate of the value of calcium as an anti-anaphylactic; second, that an isotonic solution of calcium lactate used intraperitoneally, in large doses of 5 to 10 c.c., is very poisonous to male guinea-pigs, the mortality being over 62 per cent.; third, that an isotonic solution of calcium lactate used intraperitoneally, in small doses of 1 to 4 c.c., and at the proper time, does protect guinea-pigs from the anaphylactic shock resulting from milk, horse-serum, egg-white and cat-serum. In the first experiment, in which milk was used, the fact that only one pig survived the calcium leaves the question somewhat in doubt, although it is quite reasonable to infer that the calcium saved the second pig.

In the second experiment, in which horse-serum was used, there is again doubt, due to the fact that the horse-serum was not very toxic. In the third, fourth and fifth experiments, however, there is no room for doubt. In these experiments egg-white was employed as the anaphylactic agent with a mortality of 88.9 per cent., whereas the mortality from the second dose of egg-white, following the injection of an isotonic solution of calcium lactate, was only 20 per cent. The writers, therefore, are disposed to agree with Besredka that the use of calcium in the proper doses and at the proper time does protect the animal against anaphylactic shock. These investigations are being continued.

35. **Isoagglutination in Man and Lower Animals.**—According to Fishbein, there is a distinct isoagglutinative grouping possible; that in other mammals, isoagglutination is present but according to no special order, and that in frogs, as representing amphibians, it appears to be absent. It is suggested that where facilities permit, tests be made on a wide variety of species, including monkeys and higher apes, to see whether any definite gradation exists.

37. **Streptococci from Milk and from Throat.**—Two hundred and forty pure strains of streptococci isolated from milk and from the normal human throat were compared by the authors as to their morphology, Gram-stain reaction, character and amount of growth, and their quantitative acid production in seven carbohydrate and related organic substances. Hemolysis and gentian violet cultural test have been studied in part of the cultures. They have not found that any of the features other than the fermentative reactions are sufficiently correlated with one another or with acid production to assist in the fixing of the organisms in groups or in distinguishing the source of isolation. The seven organic substances tested show a definite order of availability for acid production. This order and the percentage of cultures yielding 1.2 per cent. or more of acid when grown at 37 C. for three days is shown.

According to the positive reaction—over 1.2 per cent. acid—in the test substances, 90 per cent. of the cultures may be correlated so as to fall into nine groups. Milk streptococci are distinguishable from the throat organisms of the same morphology (1) by their higher acid production in substances in which they grow, (2) by their greater independence of temperature relations, (3) by their general incapacity to ferment more complex test substances than the disaccharids. On the other hand, the throat strains in at least half the cases (1) ferment a more complex test substance and (2) in almost all cases fail to ferment a higher test substance than the monosaccharid at the room temperature.

38. **Anaerobic Bacillus in Uterine Discharges.**—In a bacterologic study of leukorrheal discharges now in progress, curved bacilli have been found by Curtis in a considerable number of cases. These bacilli are as a rule sparsely scattered among other organisms without definite indication that they play a part in maintaining the leukorrhea. Because of the small number of curved bacilli and the difficulty with which they are isolated, numerous early attempts to obtain pure cultures met repeated failures. In two later cases, however, morphologically similar bacteria were found in large numbers. One patient suffered from an infection following instrumental abortion; in the other case infection complicated labor at full term. Smears from the first patient revealed an overwhelming number of Gram-negative, curved bacilli. Stained specimens of the vaginal and cervical discharges obtained from the patient with puerperal infection contained a great preponderance of apparently identical organisms. There were also present scattered Gram-negative, fusiform bacilli, a fair number of Gram-positive diplococci and some Gram-negative diplococci. A single set of cultures from the abortion case failed to yield the desired growth and material for later cultures was not available. In anaerobic cultures from the vagina and from the uterus of the patient with puerperal infection, the bacillus was readily isolated. The presence of the bacillus in overwhelming numbers in two cases of infection, together with the fact that similar organisms are found in patients with leukorrheal discharge, makes further clinical observation desirable.

40. **Fusiform Bacilli and Pathologic Processes.**—Fusiform bacilli were found by Dick in three cases of meningitis. In one of these cases, the infection probably arose from the middle ear which is in communication with the nasopharynx in which fusiform bacilli are commonly found. In the other two cases the infection probably followed chronic bronchitis. Three cases of lung infection associated with fusiform bacilli are described, the first a bronchiectasis, the second a gangrene, and the third an empyema. Fusiform bacilli were found in a case of peritonitis following endometritis. The importance of the fusiform bacilli in causing the pathologic processes with which they were associated, must remain an open question. The negative results of all attempts to demonstrate pathogenic powers for animals suggest that the organism may have been present only as a secondary invader, as other organisms were found in all the cases.

42. **Methods for Obtaining Virus of Rabies.**—These two new methods are: first, the application of collodion sacs for the dialysis of glycerin; second, the use of aspiration for obtaining the virus of rabies from the submaxillary glands of rabid dogs. This aspiration extract is virulent when filtered through a Berkefeld filter. These methods have enabled Poor and Steinhardt to obtain a virus of rabies freed from the cells of the host and other contaminating organisms and to suspend this virus in any desired fluid. The results of their studies on

rabies will be published later. They have also done some comparative work with vaccinia, and are beginning similar studies with epidemic poliomyelitis, the virus of which, as frequently noted, has a strong likeness to that of rabies. For obtaining a dry tuberculin from the glycerin preparation, they believe the use of the collodion sacs for dialysis to be superior to other methods.

44. **Tuberculosis of Stomach.**—Dewey's case was one of tuberculous lymphangitis not associated with ulcers as the starting-point, but which, in all probability, would ultimately lead to the development of ulcers of the various types known to us from the literature. The ensemble of the conditions in this case, the fact of the general tendency of tuberculous processes to spread along lymph channels, and conclusions drawn from the literature on this subject lead Dewey to assume the lymphogenous nature of the infection not only in this case, but in the larger number of cases of tuberculosis of the stomach.

Maine Medical Association Journal, Portland

March, III, No. 8, pp. 1219-1262

47 Present Day Method of Anesthesia. W. M. Loothby, Boston.
48 Chronic Lead Poisoning from Drinking-Water. D. M. Stewart, South Paris.
49 Small-Pox. E. T. Flint, Foxcroft.

Medical Record, New York

March 22, LXXXIII, No. 12, pp. 507-552

50 Relative Value of Living and Dead Tubercle Bacilli and of Their Endotoxins in Solution in Active Immunization Against Tuberculosis. K. Von Ruck, Asheville, N. C.
51 Radical and Conservative Methods in Obstetric Treatment. G. W. Kosmak, New York.
52 Treatment of Lime Starvation. J. F. Russell, New York.
53 *High Calory Diet in Typhoid. M. H. Sicard, New York.
54 Gradually Developing Hemiplegia Due to Cerebral Neoplasm. M. H. Fussell and S. Leopold, Philadelphia.
55 State Care for Mental Defectives. M. M. Vinton, East Orange, N. J.
56 Medical Treatment of Appendicitis. B. Robinson, New York.

53. **High Calory Diet in Typhoid.**—The high calory diet in typhoid is endorsed by Sicard. This diet consists of milk as a basis and carbohydrates. Carbohydrates being the best sparers of proteids, it is this ingredient chiefly that is used to obtain the caloric increase. Carbohydrates are best supplied in the form of milk-sugar, cereals, bread, toast, crackers, baked or mashed potatoes; they are the best proteid sparers available, and milk-sugar is preferred because of its lesser bulk and high caloric value. Fats are best given as cream, butter and cocoa. The most available food for maintaining proteid equilibrium are milk, eggs and the protein containing carbohydrates. The quantity of food taken is of great importance, and depends on the requirement of each individual case; every patient should be given as much as he will take and digest without being forced; aversion to food is often dependent on lack of variety, and a person will often be tempted by liberal feeding when milk would be declined; nausea, vomiting, distention, diarrhea, undigested milk in the stools, all call for a change of feeding if they are present. The loss of weight depends, generally speaking, on the amount of food taken; under the old period of fluid diet, patients lost from 15 to 25 or more pounds during their illness; but with sufficient food the loss is rarely more than 10 pounds in severe cases; in moderately severe cases the loss is slight, and not infrequently patients will gain weight.

Vomiting seldom proves a contra-indication to the feeding of high fuel values; if any article prove to be distasteful, the patient will soon complain of it and it can be stopped; if vomiting continues the diet is to be stopped until the stomach is quiet and then resumed. Diarrhea is not common; it may be due to an excess of fat which can be easily stopped.

Distention, if due to milk-sugar, is not relieved by the ordinary means, so the sugar can be reduced; these conditions are not common, however, as patients get accustomed to fat and milk-sugar and take and handle them well.

In the twenty-nine cases cited by Sicard there were four cases of hemorrhage, two of which were large and fatal; one of these was an alcoholic subject who had delirium tremens on admission. As to the occurrence of relapses, Sicard's feeling is that it makes but little difference; patients liberally fed and those lightly fed, seen to relapse equally; there were four relapses in his twenty-nine cases. He had no cases of perforation in his series.

Of the twenty-nine patients, three died, approximately 10 per cent.; of these one died of hemorrhage, one other also died of hemorrhage who was alcoholic and who was on a low calory diet only; one died who had persistent vomiting both before and after admission, and who had but little feeding of any kind. Sicard is convinced that these patients show a cleaner, moister tongue, more comfortable mouth, less offensive breath, less emaciation, less nervous exhaustion which was shown by continuous muttering and constant picking at the bedclothes, a cleaner, healthier skin, greater comfort, less diarrhea, probably lessened mortality, and fewer complications. The most evident features of the high calory feeding are the sustenance of weight and nutrition, and the amelioration of hunger and the lessened tedium of convalescence.

Michigan State Medical Society Journal, Grand Rapids

March, XII, No. 3, pp. 149-188

57 Social Legislation and the Physician. B. R. Corbus, Grand Rapids.
58 Care of Feeble-Minded. H. A. Haynes, Lapeer.
59 Pernicious Anemia. C. N. Sowers, Benton Harbor.
60 Use of Calcium Hypochlorites in Water Purification. F. C. Penoyer, South Haven.
61 Membranous Pericolitis or Jackson's Membrane. H. E. Randall, Flint.
62 Few Aids for General Practitioner. N. DeHaas, Fremont.

New York Medical Journal

March 22, XCVII, No. 12, pp. 581-632

63 Artificial Pneumothorax: Indications and Contraindications. S. A. Knopf, New York.
64 Idem: Technic and Results. M. E. Lapham, Highlands, N. C.
65 Shortening Uterosacral Ligaments. H. Grad, New York.
66 Homosexuality: Its Psychogenesis and Treatment. I. H. Coriat, Boston.
67 Psychic Constitutional Inferiority. M. J. Karpas, New York.
68 Experiences with Neosalvarsan. J. Kaufman, New York.
69 Surgical Catharsis. S. B. Overlock, Pomfret, Conn.
70 Removal of Mucocele of Appendix. J. W. Kennedy, Philadelphia.
71 Therapeutic Possibilities of Manual Adjustment. R. K. Smith, Boston.
72 Unconscious Impairment of Vision. S. E. Pendexter, East Orange, N. J.
73 Epidemic Cerebrospinal Meningitis. M. B. Wesson, El Paso, Tex.
74 Effect of Diplodia Zeae and Some Other Fungi on Some Phosphorus Compounds of Maize. H. S. Reed, Blacksburg, Va.

New York State Journal of Medicine, New York

March, XIII, No. 3, pp. 117-176

75 *Use of Fetal Serum to Cause Onset of Labor. A. J. Rongy, New York.
76 Fetal Overgrowth and Its Significance in Labor. G. W. Kosmak, New York.
77 Indications for Abdominal Cesarean Section, with Technic of Operation and Analysis of 352 Cases. R. McPherson, New York.
78 Delivery of Placenta and Membranes. L. Faust, Schenectady.
79 Renal Hematuria. H. L. Elsner, Syracuse.
80 Optimistic View of Migraine. E. M. Alger, New York.
81 Dispensary and Day Camp in Relation to Anti-Tuberculosis Movement. G. J. Eckel, Buffalo.
82 Exhibitions of Sections of Temporal Bone-Dry Specimens Showing Nasal Accessory Sinuses. W. M. Dunning, New York.
83 Work and Aims of County Medical Society. B. H. Wells, New York.
84 Mineral Springs of Saratoga. G. H. Fish, Saratoga Springs.

75. **Fetal Serum in Onset of Labor.**—Rongy's nineteen clinical observations fully affirm the results and findings of Von der Heide in almost every particular.

Ohio State Medical Journal, Columbus

March, IX, No. 3, pp. 193-164

85 *Diagnosis and Treatment of Syphilis. L. A. Levison, Toledo.
86 Stones in Common Duct of Liver. W. D. Hamilton, Columbus.
87 Experiences with Yankauer Treatment in Tubotympanic Trouble. H. B. Harris, Dayton.
88 Diagnosis of Puerperal Sepsis. S. J. Goodman, Columbus.
89 Metastatic Purulent Ophthalmia (Endophthalmitis Septica). F. W. Alter, Toledo.

90 Treatment of Acute Inflammation of Accessory Sinuses. J. J. LaSalle, Toledo.
91 Physician and Patient in Prevention of Malpractice Suits. W. J. Stone, Toledo.

85. Abstracted in THE JOURNAL, Nov. 25, 1912, p. 1671.

Oklahoma State Medical Association Journal, Muskogee

March, V, No. 10, pp. 441-484

92 Family Physician and Insane Patient. D. W. Griffin, Normal.
93 Management of Uterine Misplacement. R. J. Baze, Chickasha.
94 Radium Water. A. N. Lerskov, Claremore.
95 Two Hundred Obstetric Cases—Deductions Therefrom and Unusual Cases. L. H. Murdock, Okeene.
96 Disorder Due to Intense Heat. G. A. Kilpatrick, Wilburton.
97 Urinary Symptoms Caused by Uterine Fibroids. V. Berry, Okmulgee.

Texas State Journal of Medicine, Fort Worth

March, VIII, No. 11, pp. 287-320

98 Diagnosis of Duodenal Ulcer. W. B. Thorning, Houston.
99 Use of Bismuth Paste in Treatment of Chronic Suppurations. A. C. McDaniel, San Antonio.
100 Preference of Operations for Retroversions. J. M. Inge, Denton.
101 Use and Abuse of Uterine Curette. B. C. Eskridge, Houston.
102 Non-Malignant Retraction of Nipple. J. J. Terrill, Galveston.
103 Hemophilia: Report of Three Cases. J. E. Gilcreest, Gainesville.
104 Uncinariasis—Pathology and Diagnosis. L. F. Johnson, Bessmay.
105 Opium Fiend. W. C. Rountree, Fort Worth.
106 Venous Anesthesia. I. C. Chase, Fort Worth.
107 Shortcomings. E. H. Snyder, Canadian, Tex.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 1, I, No. 2722, pp. 425-476

1 Death by Electric Currents and by Lightning. A. J. Jex-Blake.
2 Use of Physical Constants in Toxicology. O. C. M. Davis.
3 *Intramural Spread of Rectal Carcinoma. P. P. Cole.
4 Dislocation of Metatarsus with Account of Three Cases. A. Young.
5 Application of Fungi as Styptics. A Historical Review. E. Knight.
6 *After-History of Gastro-Enterostomy for Peptic Ulcer. A. W. Bourne.
7 *Method of Performing Gastrojejunostomy. K. Black.

March 8, I, No. 2723, pp. 477-536

8 Recent Advances in Diagnosis, Prognosis and Treatment of Heart Disease: the Polygraph. F. W. Price.
9 Certain Physical Signs of Myocardial Involvement. T. Lewis.
10 Manifestations of a Healthy Heart. W. B. Thorne.
11 Ventricular Rate in Complete Heart-Block. A. E. Naish.
12 Auricle in Mitral Stenosis. D. W. Samways.
13 Death by Electric Currents and by Lightning. A. A. Jex-Blake.

3. **Intramural Spread of Rectal Carcinoma.**—Twenty cases of rectal carcinoma, in eighteen of which the bowel investigated was removed by operation, were analyzed by Cole. The growth in every case was an adenocarcinoma. In eighteen cases the appearance presented was that of a typical carcinomatous ulcer; in one there was a tendency to mass formation approximating to the papilliferous form, while one exhibited a diffuse colloid infiltration. The ulcers presented the usual features. Their edges were irregular, rolled and everted. The long axis of the ulcer was transverse in every case, showing a tendency to involve the bowel circularly rather than longitudinally.

Another point noted with regard to these ulcers was the frequency with which a narrow tract of mucous membrane was found to be involved in cases in which clinical examination suggested that the ulcer had completely encircled the bowel. This narrow tract of apparently normal mucous membrane was always situated in the midline posteriorly. Examination of other specimens, preserved in the museum of the Cancer Hospital, indicates that this condition is so common as to be almost characteristic. The favorite site of origin of cancer of the rectum would appear to be on the anterior or lateral wall. From this point the growth spreads round the bowel, a partial indication of its progress being afforded by ulceration which begins to occur at a very early stage.

6. **After-History of Gastro-Enterostomy.**—Bourne presents the results of his study of the after-history of sixty-seven cases in which the operation of gastro-enterostomy had been performed for ulcer of the stomach or duodenum. The operations were done by many different surgeons, and for almost every clinical type of ulcer—during a period beginning in 1904 and ending in April, 1910. In the most recent cases there was an interval of at least eighteen months between the operations and the inquiry as to the present condition of the patients, while in the older cases more than five years had elapsed. Out of ninety-two cases there were seven deaths immediately following the operation (7.6 per cent.) All these deaths occurred among the first thirty-nine cases; throughout the last fifty-three cases there was no death. Of the ninety-two cases of the series, sixty-eight have been traced; of these three have died in the interval (4.4 per cent.).

Reviewing the results of this series broadly, Bourne says that as a general rule gastro-enterostomy is excellent for men of middle age who suffer from duodenal ulcer, especially if associated with some pyloric stenosis, whereas failure generally follows operation in cases of young women suffering from gastric ulcer.

Thus, of 12 females under 35—all subjects of gastric ulcer—ten cases were complete failures and two only were successful. Some of these cases were in young and anemic women, and on opening the abdomen no ulcer was found. There were four cases in which no ulcer was discovered, and of these three did badly. Probably in these four cases no ulcer existed, and it is clear that operative treatment could have been of no avail.

A more exact knowledge of the symptomatology and morbid anatomy of the ulcer might enable us to predict, with even more confidence, the result of gastro-enterostomy. The immediate mortality of ninety-two cases was 7.6 per cent., but of the last fifty-three cases it is *nil*. The general results are: 43 per cent. excellent; 38 per cent. bad. Prognosis is much better when the patient is over 40. According to sex, 69 per cent. of males are cured; 28 per cent. of females are not improved. The duration of symptoms is of no assistance in forecasting the result of operation. The length of time elapsing between the meal and the onset of the pain is of great importance; the longer it is the better the outlook. Duodenal ulcers yield very much better results than gastric ulcers; the gastric give 38 per cent. of cures, duodenal 70 per cent. of cures. Cases of pyloric stenosis yield the best results. The degree of hyperchlorhydria is of importance, cases showing a total acidity of over 0.2 per cent. reacting well, cases with normal acidity doing badly.

The improvement effected by the operation is probably due to the relief of dilatation, pyloric spasm and hyperacidity by the drainage of the stomach. Failures may follow the closing of the anastomosis. The position of the anastomotic opening on the posterior wall of the stomach may be of great importance. Failures may be due to: (a) recurrence or failure to heal of the original ulcer; (b) formation of jejunal ulcer. Apparent relapses: (a) adhesions—causing pain, vomiting, etc.; (b) carcinomatous degeneration. Cases in which an ulcer is not found at operation do badly.

7. **Method of Performing Gastrojejunostomy.**—The method described by Black has been used in twenty-six consecutive operations with two fatal results. In one case (of very advanced carcinoma of the pylorus) the patient died from exhaustion two days after the operation; and in the other (of duodenal ulcer) the patient, who had previously undergone an operation for some pelvic disease, died three weeks after an apparently successful gastrojejunostomy operation, from the effects of an abdominal abscess, the cause of which was not ascertained, but which, it is believed, was unconnected with the gastrojejunostomy operation. The method of operation is described as follows: After the abdomen has been opened in the usual way, and the diseased area examined, the stomach, transverse colon and great omentum are over on to the abdominal wall, so that the posterior wall of the stomach is uppermost. The transverse mesocolon is then cut through and the stomach drawn through the opening.

Two short-bladed forceps are then applied, one to each end of the portion of stomach selected for junction with the jejunum. This portion of stomach—that is, the portion lying between the two forceps—is not "clamped" with a forceps, but is left "free." The omission to check, by clamping hemorrhage and gastric contents is a special feature of Black's modified method of operation. The edges of the cut in the transverse mesocolon are fastened, with a few stitches, to the stomach wall. The next step is to select a portion of the jejunum for junction with the stomach. Each end of the selected portion is grasped with a short-bladed clamp forceps of the same kind as previously applied to the stomach. By means of these two pairs of forceps the portions of stomach and jejunum which are to be connected are brought close together and held side by side. Sponge cloths are then packed round the exposed portions of stomach and jejunum. With a Lembert suture the outer coats of the stomach and jejunum are then stitched together for a length of about 4½ inches. Openings of the requisite length (3½ to 4 inches) are made in both the stomach and the jejunum. When the stomach is opened its larger vessels are secured and ligatured. This is a special feature of the operation, the object being to check hemorrhage during the operation and to prevent postoperative hemorrhage.

The next step is to join the opening in the stomach to that in the jejunum. There are four rows of stitching. The first row is simply peritoneal stitching. The second row, just in front of the first row, joins one side of the opening in the stomach to the corresponding side of the opening in the jejunum; this row of stitches secures the whole thickness of the stomach wall to the jejunum. And, similarly, the third row, joining the other side of the opening in the stomach to the other side of the opening in the jejunum, extends to the whole thickness of the walls of the stomach and jejunum. This third row closes the openings in and completes the junction of the stomach and jejunum. The fourth row of stitches, similar to the first row and corresponding to it, on the other side of the openings, is simply a Lembert peritoneal continuous suture. The sponge cloths are then removed and the stomach turned down and replaced in the abdominal cavity, which is closed in the usual way.

Journal of Laryngology, Rhinology and Otology, London

March, XXVIII, No. 3, pp. 113-168

14 Sir Felix Semon—His Work and Its Influence on Laryngology. P. McBride.
15 Diffuse Osteomyelitis from Nasal Sinus Suppuration. D. McKenzie.
16 Some Dental Aspects of Rhinology. J. H. Gibbs.

Lancet, London

March 1, I, No. 4670, pp. 583-662

17 Surgery of Thyroid, with Special Reference to Exophthalmic Goiter. J. Berry.
18 Elements of Prognosis in Pulmonary Tuberculosis. J. M. Bruce.
19 *Typhoid and Paratyphoid Vaccination with Live Attenuated Vaccines; Mixed Vaccines. A. Castellani.
20 Should a Man with Miner's Nystagmus Work? S. Riseley.
21 Perforation of Gastric or Duodenal (Pyloric) Ulcers. E. M. Corner.
22 Contraction Ring as Cause of Dystocia. C. White.
23 Summary of 340 Cases of Pulmonary Tuberculosis. J. C. Voigt.

March 8, X, No. 4671, pp. 663-736

24 *Peritoneal Adhesions. J. E. Adams.
25 Surgery of Thyroid, with Special Reference to Exophthalmic Goiter. J. Berry.
26 Principles of Percussion and Auscultation. F. Müller.
27 Blood in Cancer with Bone Metastases. G. R. Ward.
28 Fatal Hematemesis in Case of Hepatic Syphilis. D. E. Core.
29 Case of Subcortical Cerebral Tumor, Tuberculous in Nature, Removed by Operation; Recovery. G. Hall and H. B. Angus.
30 Treatment of Pulmonary Tuberculosis. N. D. Bardswell.

19. Typhoid and Paratyphoid Vaccination.—Castellani says that the use of live attenuated vaccine prepared according to the method introduced by him in 1904 is harmless. In preparing the vaccine the strain used should be non-virulent but rich in antigen, as found out by animal experiments. Such vaccine in the lower animals, and probably in man, too, gives rise to a higher degree of immunization than obtainable with dead vaccines. It must be stated, however, that in man the immunization obtained by two inoculations of this vaccine or any of the dead vaccines is never complete; it is only partial. Cholera and dysentery attenuated live vaccines can be obtained by using a somewhat similar method as that for preparing the typhoid vaccine; but for the dysentery vaccine peptone-water cultures and not broth cultures should be used, as these give rise to an extremely painful infiltration at the site of inoculation.

Castellani has no personal experience with the sensitized live vaccine prepared in 1911 by Metchnikoff and Besredka, but their results seem to be extremely good, as shown by Alcock. The experimental work of these observers on live vaccines is of great importance, having demonstrated that chimpanzees can be rendered immune to typhoid only by the inoculation of living vaccines, either sensitized or non-sensitized. Various mixed vaccines can be prepared, either dead or live attenuated vaccines. The inoculation of such mixed vaccines is harmless, and apparently in the lower animals they induce a degree of poly-immunization, the blood developing protective substances for each of the germs inoculated. Castellani is of the opinion that in countries where paratyphoid A and B are endemic besides typhoid, a mixed vaccine typhoid + paratyphoid A + paratyphoid B should be used. If a live mixed vaccine should be objected to, a dead mixed vaccine can be used with satisfactory results. The inoculation of such vaccines as shown by him since 1909 is harmless, and it is probable that they give a certain degree of immunization for all three infections.

24. Peritoneal Adhesions.—In those cases in which gauze was fixed in position, as in a drainage wound, Adams found that fairly firm adhesions form within a few hours, and they form more quickly in an infected than in a sterile wound. Sterilized sponges were placed in the peritoneal cavity of guinea-pigs and left in position for periods varying from one to six days. In every instance the sponge was found adherent to the omentum, not to the intestine, and the density of the adhesions was directly proportional to the length of the sponge's stay in the abdomen; after one day it was easily detached from the omentum; after six days the sponge was embedded in the omentum. In every case the sponge was saturated with blood-stained fluid, and from this films were made by gently squeezing the sponge, and these were treated with Leishman's stain. The cells present were red blood-corpuscles, finely granular leukocytes, lymphocytes and endothelial cells, and while red cells were always numerous, the films exhibited a progressive, proportional increase in both lymphocytes and endothelial cells.

Further experiments were carried out on rabbits, and a number of sterile sponges were placed in different parts of the peritoneal cavity, being left *in situ* for varying periods. In a very large proportion of these cases the sponge was taken up by the omentum and was not adherent to the intestine, but where it had escaped the embrace of the omentum firm adhesions were found between sponge and bowel, or between sponge and solid organs. Pressure and peristaltic activity both played a part in the ultimate result, for in the case of sponges placed between the liver and the diaphragm the latter remained unattached, while the sponge was found partially embedded in the liver substance, so that only its upper surface lay exposed. Sponges which were placed in the pelvis were sometimes adherent only by that surface which was the lower in the customary attitude of the animal. If adhesions were present between intestine and sponge it was very rarely the small bowel which was implicated, and a reasonable explanation of this is afforded. In one experiment a sterile sponge was left in position for one month, and it had then become adherent to both small and large intestine. Microscopy revealed healthy gut with fibrosis of its serous coat, and a broad band of fibrous tissue passed between the sponge and the colon. Cultures from the sponge were sterile. Microscopic examination of these non-infective adhesions showed evidence of well-formed fibrous tissue after the third day, and a specimen obtained seventy-two hours after a sponge had been placed between the diaphragm and the liver showed a horizontal palisade of fibroblasts over the congested

liver capsule, and, on the distal side, masses of fibrin surrounding cotton fibers, with numbers of finely granular leukocytes and some endothelial cells.

Next Adams experimented with drainage-tubes. The tubes were fixed in position and buried beneath the sutured abdominal wall; lateral openings were closed in a very short time, and in twenty-four hours the whole of the tube was plastered over with newly-formed tissue consisting of fibrin containing numbers of red blood-corpuscles and degenerated finely granular leukocytes. This, Adams believes, tends to show that tube-drainage of the peritoneum, unless there is an abscess cavity with well-defined walls, is of very limited value, and he voices the belief that in septic cases the presence of a tube may, by its pressure, favor the transmigration of organisms from the interior of the gut to the infected area; and this view is supported by the clinical observation that there is often very little discharge until the third or fourth day after operation, when, by the action of organisms, leukocytes and the body fluids, liquefaction of the inflammatory tissue will have taken place.

In the course of Adams' investigation many methods were utilized to induce fibrosis, but only one proved invariably successful, and that was the introduction of sterile foreign bodies. After the removal of sponges adhesions have practically always been found between the omentum and bowel, or between intestinal coils only; to ensure the formation of the latter the omentum has been removed at the operation for insertion of the sponge. Other methods employed have been scarification of visceral surfaces and of the parietal peritoneum, the injection of chemical irritants and of emulsions of sand and chalk.

In the inoculation experiments the omentum always played an important part in the changes which occurred, and the results of intraperitoneal injection of 4 c.c. of a 15 per cent. sterilized emulsion of silver sand in guinea-pigs are of interest. Nine inoculations were performed on one day, and the peritoneum was examined at periods varying from three days to fourteen weeks. In every case there was a granulomatous mass on the parietal peritoneum containing particles of sand close to the injection puncture, and these areas, a quarter of an inch wide and raised slightly above the surrounding surface, were often multiple. In seven of the animals the omentum was lightly adherent to the granulomata, and the only two in which it was free were examined after thirty-seven and ninety-five days, respectively. In the last case it appeared that the peritoneum had recovered from the irritation, since there was scarring, but the granulomata were very small. In six instances a portion of the omentum was cut off at the post-mortem and dropped into a broth tube; five of these were sterile; the sixth gave a pure culture of a *Staphylococcus albus*, and in this animal the omentum was found plastered over the surface of the liver. In two cases definite fine bands of fibrous tissue were present, in addition to omental adhesions.

Similar experiments were carried out on rabbits, the sand emulsion being introduced by open operation. After eleven days the parietal peritoneum was studded with nodules of a grey-yellow color, raised about a quarter of an inch above the surface, and similar nodules with pointed tags were present on the large intestine; the small bowel was entirely free from these granulomata. After twenty days it was found that definite fibrous bands passed from the colon to the parietal peritoneum. Microscopy of the inflammatory tags found after eleven days revealed connective-tissue cells arranged in whorls and surrounded by fibrous tissue; in the central parts of the section giant cells were seen, and between the true fibrous tissue and the connective-tissue cells numbers of elongated oval fibroblasts were present. The absence of blood-vessels was striking.

Chemical irritants were found to be much less reliable in the production of adhesions, although they caused marked endothelial proliferation, excess of exudation and occasionally fibrinous agglutination of the viscera. The effect of scarlet red was absolutely negative as a producer of peritoneal adhesions. With regard to scarification of serous surfaces, an attempt was made in a number of experiments to ascertain whether intact peritoneum readily adheres to raw areas, or whether two raw surfaces are required to ensure the formation of adhesions. It was found, in the first place, that merely rubbing an endothelial surface with sterilized gauze was not to be relied on to excite such cellular proliferation, and that such irritation could be rapidly recovered from without showing any definite traces of injury or repair. Secondly, linear scarification with the point of a scalpel was often repaired with very little evidence of change. Lastly, where definite areas of the wall of the stomach or colon were denuded of their peritoneal coat it was almost certain that the omentum would become adherent if the bare area lay within its field of excursion. Adams' investigations into infective adhesions were directed to the study of the changes which followed the introduction of cotton-wool sponges inoculated with broth emulsions of agar cultures of such organisms as the *Staphylococcus aureus* and the *Bacillus coli*. It was by no means certain that a pure infection with one organism will not become a mixed bacterial infection; in fact, it seems probable that such change will occur. Using at first excessively small doses of the *Bacillus coli*, it was found that adhesions developed more quickly than around aseptic foreign bodies, and the same organism was recovered in pure culture up to three days after the operation. With the *Staphylococcus aureus* the adhesions were less dense, and in a case in which one sponge was placed between the diaphragm and the liver and another in the pelvis, the latter was free from adhesions, whereas the former was partially sunk into the upper surface of the liver. Cultures from the upper sponge were sterile, while from the lower an attenuated growth of a white staphylococcus was obtained. This appears to show the bactericidal action of the peritoneum and the superior power of absorption possessed by that covering the diaphragm. In this case only a single platinum loop of a twenty-four-hour broth culture of the organism was used, and the subsequent cultures were taken at the end of three days. When larger doses were employed the changes were correspondingly more extensive and more rapid.

In connection with infective adhesions the result of applying pure phenol to the serous coat of the large intestine is of interest. One drop of this chemical irritant was applied on the point of a pair of artery forceps to an area, half an inch in diameter, of the surface of the colon, and also to several smaller spots on both large and small intestine. The serosa became white and lost its polish, but it still moved freely on the subjacent muscle; the omentum was not touched. The abdomen was reopened at the end of a week; the small intestine showed no change, and all traces of the caustic had disappeared. In the case of the large bowel several small areas showed thickening and proliferation of inflammatory origin similar to that seen after scarification with the point of a scalpel. At one spot, corresponding to the larger area of carbolic cauterization, a very vascular band of omentum was adherent. A portion of this was excised and dropped into a broth tube; a pure growth of the *Bacillus coli* was obtained. The adhesion was not divided until three weeks after the first operation, and the *Bacillus coli* was still present. Excision of nearly the whole of this band failed to prevent its forming again, but when the animal was killed two months after the first operation cultures from the reformed omental band proved to be sterile. In this case it appears probable that the adhesion was largely due to the presence of the colon bacillus, which had passed through the damaged serous coat of the gut, and although the infection gradually died out its ill results remained in the form of permanent fibrous tissue.

Practitioner, London

March, XC, No. 3, pp. 513-644

31 Prevention of Malingering Under National Insurance Act. J. Collie.
32 Cholelithiasis. J. Sherren.
33 Idem. W. Bain.
34 Suppuration in Nasal Sinuses. C. W. M. Hope.
35 Cavernous Sinus Thrombosis. A. Dighton.
36 Treatment of Adenoids and Tonsils. E. Ward.
37 Ear, Nose and Throat Work in General Practice. H. P. Costobadie.
38 Recent Work on Vaccine Treatment. A. Fleming.
39 Progress of Study of Diseases of Women During 1912. F. J. McCann.
40 Oxygen as Adjuvant in General Anesthesia. H. R. Phillips.
41 Electrical Operative Treatments for Diseases of Skin and Mucous Membrane. W. K. Sibley.

42 Clinical Significance of Blood-Pressure Records. L. T. Thorne.
43 Diagnosis of Congenital Syphilis. H. L. McCarthy.
44 Medical Certificates of Lunacy. G. K. Aubrey.
45 Salicylate of Iron. M. C. S. Lawrance.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXII, No. 2, pp. 9-15

46 *Two Cases of Tumor of Spinal Cord. S. Sato.
47 Hemolytic Action of Adrenalin. S. Kariya and H. Tanaka.
48 Nutrition of Eggs of Schistosomum Japonicum and Changes They Undergo Under Action of Various Physical and Chemical Agents. Y. Miyakawa.
49 Blackwater Fever and Its Clinical Study in Korenko, Formosa. K. Nakagawa.
50 Experimental Study on Cause and Nature of Beriberi. R. Yamagiwa, T. Koyano, H. Midorikawa and T. Mogi.

46. **Tumor of Spinal Cord.**—One of the cases reported by Sato was an extradural fibrosarcoma of the cervical portion, which caused a strong pressure on the cord and interfered with the movements of the body and limbs to a considerable extent. These motor paralyses recovered, however, almost completely through the extirpation of the tumor. The second case was a meningitis spinalis chronica circumscripta of the conus medullaris, which caused almost the same clinical symptoms as the tumor of the spinal cord, namely, the paralysis of both the lower extremities. In this case the movements of the left limb have remarkably recovered through the loosening of the adherent spinal membranes and the resection of the necrosed part on the right side of the cord. From these experiences the author raises the following points as noteworthy: The disturbance of the motility in the limbs which was caused by the pressure of a tumor on the cord can be relieved by the removal of the cause—tumor—within a few hours even when it has existed for a few years, and patients always get better in another year and a half. In the first case the recovery of the motor disturbances occurred more quickly and markedly than that of the sensory disturbances, and in the second case it was just the reverse. The extirpation of tumors of the spinal cord is not a very severe operation, and one can resect two or three spinal arches without subsequent disturbances. The sarcoma occurs most frequently in the statistics of operations by various authors and the fibroma comes next to it. The results of the operation are good in the cases of the tumor of the dorsal cord, but bad in those of the lumbar region.

Annales de Gynécologie et d'Obstétrique, Paris

February, XL, No. 2, pp. 65-128

51 *Uncontrollable Vomiting of Pregnancy and Retroversion. A. Herrgott.
52 *Cystoscopy in Determining Operability of Cancer of Uterine Cervix. P. Cruet. Commenced in No. 1.
53 Salvarsan for Syphilitic Pregnant Women. C. Sauvage. Commenced in No. 1. (See Abstract 34, p. 788.)

51. **Uncontrollable Vomiting of Pregnancy.**—Herrgott emphasizes that the cause of the uterine vomiting varies in different women. In a recent case myelitis and polyneuritis developed in the course of the uncontrollable vomiting, and the patient died thirty-seven days after the pregnancy had been interrupted. Necropsy showed degeneration of the nerve fibers and cells analogous to the lesions produced by certain poisons, arsenic for example. In another group of cases, however, some displacement of the uterus is responsible for the vomiting, retroversion or retroflexion. Reflex influences from this source often induce coughing and dyspeptic derangement outside of pregnancy, and in a pregnant woman may bring on the uncontrollable vomiting. Correction of the displacement puts an end at once to all trouble from this source, as he illustrates by a typical example from his own experience. The vomiting returned after a first correction of the displacement and it was found that the uterus had slipped back into its old position. The displacement was then corrected anew and the uterus held in place with a pessary and the vomiting was arrested at once and permanently.

52. **Cystoscopy in Case of Cancer of Uterine Cervix.**—Cruet's final conclusions from study of ten operable and seventeen inoperable cancers are that simple bulging of the floor of the bladder with or without slight disturbances in the local circulation is of no moment. No complications developed in any case of this kind. Pronounced ridges and valleys in the floor of the bladder are a sign of adhesions, generally of inflammatory origin, which will render it difficult to loosen up the bladder and ureters. Diffuse edema in parallel folds was usually a sign of numerous adhesions, sometimes connected with the cancer and always enhancing the difficulty of the operation or rendering it futile. The edema was never encountered in the operable cases. Compression of the ureter entails irregularity and delay in the evacuation of urine into the bladder, and the force of the jet is impaired. There is liable to be a spasm of the outlet and sometimes a stiffening of the adjoining mucosa after the ejaculation. These signs of compression of the ureter locate the site of the cancer, and the absence of these signs is presumptive evidence that the trouble is of non-malignant nature. When in doubt whether to operate or not, the cystoscopic findings will often decide for or against an operation. (See abstract of first instalment, THE JOURNAL, March 8 p. 788.)

Archives Générales de Médecine, Paris

February, XCII, No. 2, pp. 161-192

54 Paraffin Prosthesis and Deformity of the Nose. M. Lagarde.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

February, II, No. 2, pp. 113-224

55 Salvarsan and Neosalvarsan for Pregnant and Parturient Women and New-Born Infants. J. Lemeland and H. Brisson.
56 Carbon-Monoxid Poisoning of Woman Eight Months Pregnant and of the Fetus. (Dosage de l'oxyde de carbone dans le sang maternel et dans le sang fœtal.) V. Balthazard and M. Nicloux.
57 Congenital Malaria. Tissier and Brumpt.
58 *Primary Malignant Tumors of the Vagina. M. Virenque.
59 Lymphatics of the Vulva and Vagina. C. Girode.

58. **Primary Cancer of the Vagina.**—Virenque reviews the various types of primary malignant tumors of the vagina and reports a case of epithelioma treated by vagino-abdominal colpohysterectomy by a technic described in detail. He reviews the methods of others, remarking that with all the prognosis is grave. Postoperative fatalities are not rare and recurrence is constantly threatening.

Bulletin de l'Académie de Médecine, Paris

February 25, No. 7, LXXVII, pp. 109-135

60 From the Seat of War. (La chirurgie de guerre en Bulgarie.) O. Laurent and E. Delorme.
61 *Dysenteric Abscess in Liver Perforating into Bronchus. Rapid Recovery under Emetin. A. Chauffard.

61. **Efficacy of Emetin in Amebic Disease.**—Chauffard's communication was summarized in the Paris Letter in THE JOURNAL, March 22, p. 917. His success in this case confirms the clinical experiences of others and apparently demonstrates that emetin is a specific for amebic disease, like quinin for malaria. The young man had contracted dysentery in northern Africa and only transient improvement had been obtained by repeated courses of treatment with serotherapy and silver nitrate. After about a year a large abscess in the liver perforated into a bronchus and ran a debilitating course of alternating evacuation and retention of pus for five months, when complete recovery followed a five-day course of a soluble salt of emetin. The charts and Roentgen findings "before and after" accompany the article. The results observed explain the benefit from ipecac used empirically in Brazil. They also confirm the dual nature of dysentery—the bacillary form amenable to serotherapy, the amebic form to emetin.

Journal de Chirurgie, Paris

February, X, No. 2, pp. 129-272

62 *Extraction of Intercostal Nerves in Treatment of Gastric Crises. (L'opération de Franke.) L. Sauvé and J. Tinel.

62. **Operation on Intercostal Nerves for Gastric Crises.**—Sauvé and Tinel have applied Franke's operation in three cases of tabetic gastric crises and have found records of ten others in the literature. They summarize this material and give twelve illustrations of the technic. There were two fatalities in the thirteen operations; the crises recurred at once unmodified in two cases and in three after a longer or shorter interval. Five of the patients have been cured but the length of the interval

since is not known. Only one patient has been completely cured for over eleven months to date. These figures show that the operation is serious and that it is not always successful, but still it is the least dangerous and the most easily executed of all the operations for gastric crises that have been suggested to date. The gastric crises subside spontaneously when the irritation of the spinal roots has led to complete destruction, as they are then no longer capable of transmitting sensation. In the severe cases showing no tendency to spontaneous retrogression or amelioration under medical treatment, operative measures should be considered. Förster's operation is logical and effectual, but enough roots must be resected to answer the purpose—from the fifth to the twelfth dorsal roots—but this technic is dangerous; Hovelacque compiled forty-nine cases last year with ten deaths and five paraplegias. The risks are too great for this operation, except as a last resort. Franke's operation does not directly interrupt the reflex arc but by tearing out the intercostal nerves the ganglion beyond is liable to degenerate and thus hasten the destruction of the irritated roots. Its simplicity commends it so that it might be proposed as the first operative measure in serious gastric crises. Sauvé and Tinel think that the same result might be obtained by simply throwing a ligature around the dorsal roots between the ganglion and the dura. This acts also on the anterior roots, but this occurs also with the Franke technic and has been found harmless. The only inconvenience seems to be an occasional slight paresis and relaxation of the abdominal muscles in the epigastric region. Sicard and Demarest recently have applied this ligature but combine with it resection of the spinal ganglion. This complicates and lengthens the operation and exposes to danger of hemorrhage. They reported a sudden arrest of respiration and slowing of the pulse, all briefly transient, as the ligature was applied. Sauvé and Tinel declare in conclusion that simple ligation seems to offer the least risk and the maximum of simplicity while it logically arrests the functioning of the irritated nerve roots and interrupts the reflex arc responsible for the gastric crises.

Presse Médicale, Paris

February 26, XXI, No. 17, pp. 157-164

63 *Neurasthenia. (Compréhension de la neurasthénie.) J. Dejerine and E. Gauckler.

63. **Neurasthenia.**—Dejerine and Gauckler say that in a series of 300 patients in the last few years who had come to them with the diagnosis of neurasthenia, not one presented any of the symptoms supposed twenty-five years ago to be characteristic of neurasthenia. Only three symptoms were common to all, namely, lassitude, depression and a tendency to become easily fatigued, and the special feature of neurasthenia is that nothing can be found to explain the lassitude and depression. In this recent series of 300 cases they took special pains to ascertain the exact way in which these symptoms first developed, and they found that there had been some mental disturbance in 34 per cent.; some organic derangement in 40 per cent. and some emotional stress in 25 per cent. of the total 300. In the first group there had been a typical attack of melancholia or depression from a periodical psychosis or actual psychasthenia or hypochondria. Suggestion did not seem to play any part in the primary development. In the group of organic disorders thyroid influences were apparent in 3 per cent. of the total; in others malaria or arteriosclerosis were certainly to be incriminated. In 6.66 per cent. simple debility was responsible. These individuals got along without disturbance in their usual mild sedentary routine but under unusual physical stress the "neurasthenia" developed at once. They weighed much less than their appearance would indicate. In 15 per cent. of the total, simple fatigue from some overexertion brought on the trouble. Although capable of normal efforts, they were unable to recuperate after some unusual strain. Others had some unsuspected focus of periostitis, floating kidney, liver trouble, tuberculous lesion in the xiphoid appendix or other organic affection which had escaped detection at the time the "neurasthenia" had been diagnosed but later revealed its true character. The diagnosis of a purely "nervous" disorder is often merely a makeshift differentiation. In thirty of the series of 300 cases of neurasthenia under discussion an unsuspected organic lesion made its existence known a little later. In over 25 per cent. some primary emotional factor predominated. In 7.66 per cent. this was long continued brooding over loneliness or the like; in 17.66 it was some one serious emotional stress. But in all cases of neurasthenia an emotional factor is evident; so much so that neurasthenia might even be defined as the grouping of disturbances developing on a predisposed soil directly or indirectly, primarily or secondarily, under the influence of persisting emotional states—the specific pathology of emotion.

Revue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

February, VIII, No. 2, pp. 73-148

64 *Management of Women after Childbirth. (Sur les divers éléments de la technique rationelle du traitement myogénétique et ambulatoire des suites de couches.) L. Bouchacourt.
65 *Menstruation in the Gouty Diathesis. L. Pierra.
66 *Dystocia from Excessively Large Children; Successful Induction of Premature Delivery; Two Cases. V. Le Lorier.
67 *Carbon Monoxid Poisoning Responsible for Anemia in City Infants. (Les facteurs urbains de l'anémie chlorotique des nourrissons et son traitement préventif.) P. F. A. Delille.
68 *Iron in Anemia of New-Born Infants. (Le traitement martial de l'anémie post-hémorragique du nouveau-né et le rôle eutrophique du fer chez certains nourrissons.) P. F. A. Delille.

64. **Position After Delivery.**—Bouchacourt discusses the various measures needed in management of parturients during convalescence. During the first twenty-four hours after delivery he has the woman lie flat on back, side or abdomen, without a pillow. This averts danger of syncope from cerebral anemia if there has been much loss of blood. The second day he has the shoulders raised with a couple of pillows, believing that this sloping position aids in the evacuation of the lochia. Reclining on the stomach facilitates the passage of gases and combats constipation. He does not permit the patient to sit up in bed until after the first week and then only in the position as in a reclining chair, the legs extended. He has her exercise by raising the trunk and bending and extending the legs as she reclines, bending and stretching the pelvis as she lies on her stomach and occasionally permitting her to sit on the edge of the bed, the legs pendent, but only for a very brief period. Faradization with the negative electrode on the perineum or in the rectum promotes the involution of the uterus and recovery of tone by the abdominal musculature in general.

65. **Menstruation in the Neuro-Arthritic.**—Pierra applies this term to women with the gouty diathesis, inclined to sluggishness in the vital processes and auto-intoxication. There are two types, the thin form with a tendency to neuralgia and sudden violent hemorrhages, and the obese form with relaxation of the tissues and inclination to ptosis and congestion. In both there is a constant tendency to hemorrhage and to recurring pains. Amenorrhea is exceptional; the gynecologic disturbances may suggest attacks of gout in the viscera. The women in this class of neuro-arthritics almost invariably have more or less menstrual disturbance; the menses are nearly always painful, often abnormally frequent, profuse and prolonged. There is a tendency to catarrhal glandular derangement. Puberty occurs early, the menopause late; both types are accompanied by hemorrhages and pain. Every patient with vague genital troubles not dependent on any organic lesion in the uterus or adnexa should be suspected of belonging to this class of sluggish nutrition, and treatment should be general to combat this tendency.

66. **Premature Delivery for Extra Large Children.**—Le Lorier had two patients whose children were so large that normal delivery was impossible. In the following pregnancy he kept watch of the growth of the fetus and when it had reached the normal size of an average fetus at term, he induced artificial delivery a month before term. The children were easily delivered and mother and child have been in the best of health since. The women were normally built but their children were extra large.

67-68. **Anemia in Infants.**—Delille became convinced that poisoning from illuminating gas or defective stoves is the cause of the anemia in many new-born infants. To counteract this he

gave iron systematically to the mothers during the pregnancy, two courses of protoxalate of iron in daily doses of 0.2 gm., each course lasting three weeks. In the five cases reported in detail the effects were excellent, none of the children showing signs of anemia, when all the children previously born in the family had been markedly anemic. He also administered the same drug for three weeks, in a daily dose of 0.05 gm., to a young infant with intense anemia following profuse melena the second day after birth. He has applied the same treatment to a number of others, either alone or accompanied by one drop of Fowler's solution a day. A three weeks' course of this kind seems to be a powerful stimulant for the nutrition in general. All the infants began to thrive at once. Carbon monoxid is especially prevalent in the air at Paris, he says, from escaping gas and primitive methods of heating, and iron is needed to counteract its effects on the blood.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

February, XXI, No. 2, pp. 33-60

69 Supplementary or Vicarious Menstruation. (Les hémorragies supplémentaires des règles et les règles déviées.) P. E. Weil.

70 Tuberculous Peritonitis Developing after Childbirth. (Cas de granulie péritonéale dans le post partum chez une malade présentant une tuberculose annexielle ancienne.) P. Fabre and Bourret.

Semaine Médicale, Paris

February 26, XXXIII, No. 9, pp. 97-108

71 Experimental Study of Connection Between Excessive Functioning of Viscera and Morbid Conditions in the Corresponding Vascular System. (Contribution expérimentale à l'étude des rapports entre l'hyperfonctionnement visceral et la morbidité du réseau vasculaire correspondant.) C. Frugoni.

March 5, No. 10, pp. 109-120

72 Advantages of Curetting in Febrile Abortion. (La question du curettage dans les avortements fébriles.) R. de Bovis.

73 Cesarean Section on Infected Uterus. R. de Bovis.

Archiv für Kinderheilkunde, Stuttgart

LIX, Nos. 5-6, pp. 321-486. Last indexed February 8, p. 482

74 *Leishman Anemia in Southern Italy; Sixty-seven Cases. G. Caronia.

75 Foundations of Modern Pediatrics. (Zur Einführung in das Studium der Pädiatrie.) A. O. Karnitzki.

76 City Babies' Hygiene. A. Baginsky.

77 *Pathology of School Children. (Kinderkrankheiten während des Schullebens.) A. Baginsky.

74. **Leishman Anemia in Italy.**—The disease develops mostly in the early spring and only two of Caronia's sixty-seven patients recovered. The duration is generally from three to six months or a little longer; in exceptional cases the disease may drag along for years. After tuberculosis, diphtheria and the eruptive diseases, this leishmaniosis is the most prevalent disease in southern Italy. Families living in rural districts or having much to do with domestic animals are specially subject to it; in only one of the total sixty-seven was the family city-bred. Direct contagion could be incriminated in most of the cases, the virus probably being transmitted by means of bedbugs. But in a few instances there did not seem to be any possibility for direct contagion, and there is much to sustain the view that dogs and dog fleas are responsible for its transmission. Franchini has recently found the parasites in gnats.

77. **Pathology of School Children.**—Baginsky remarks that a number of pathologic conditions develop during school life which should be prevented or corrected. The group of symptoms which we call overwork or overfatigue should not be ascribed to congenital or acquired neurasthenia or a psychopathy. Myopia developing during school life is not in a malignant form and it can generally be corrected by reducing the number of hours devoted to near work. Curvature of the spine developing during school age is exclusively the consequence of too long sitting and especially too long writing. It is absurd, he adds, to bring into causal relation with school life a number of diseases which occur at the school period. He anticipates the dawn of a better day in regard to tuberculosis when medical school inspectors are on the alert to detect it, but adds that education of the public down to its lowest strata is the only rational means to protect against the spread of tuberculosis.

Berliner klinische Wochenschrift

February 24, L, No. 8, pp. 333-380

78 *Opening up the Fourth Ventricle and Resection of Vermiform Process for Tumor. (Partielle Entfernung des Wurms wegen Geschwulstbildung unter breiter Eröffnung des vierten Ventrikels.) H. Oppenheim and F. Krause.

79 Topography of the Cerebellum. (Zur Kleinhirnlokalisation.) M. Rothmann.

80 The Pancreas, Liver and Carbohydrate Metabolism. J. Wohlgemuth.

81 Anesthetic Action of Cinchona Alkaloids on the Cornea. (Hornhautanästhesie durch Chinaalkaloide.) J. Morgenroth and S. Ginsberg.

82 Thorium X in Treatment of Anemia, Leukemia and Rheumatism. A. Bickel.

83 *Non-Operative Treatment of Cancer. (Zur Frage von der operationslosen Behandlung des Carcinoms.) A. Theilhaber.

78. **Operation on the Vermiform Process.**—Oppenheim's patient was an unmarried woman of 30 who for eighteen months had had recurring attacks of headache and vomiting with occasional diplopia, vertigo, singultus and tinnitus, especially on the left. The progressive symptoms were soon accompanied by choked disk on both sides, slight exophthalmos, tenderness in the left side of the lower part of the back of the head and other signs of general pressure on the brain. There was no nystagmus but the reflexes in the left cornea were abolished when the patient lay on her right side and there was constant adiadochokinesis with varying pains in the left half of the face, deviation of the lower jaw to the left and slight paresis of the left palate. There was no modification under tentative mercurial treatment, and as the symptoms were increasing and the general health running down he advised trephining the left half of the cerebellum. A plexiform lymphangiosarcoma was found between the cerebellum and the vermiform process and its removal required opening up of the fourth ventricle. No special symptoms from this extensive operation developed and the patient had soon gained 25 pounds in weight; the fundus of the eye and vision are now normal and all the objective pathologic manifestations have disappeared. The patient still has occasional headache and morning vomiting but these seem to be of a hysteric nature. The lack of local symptoms, of nystagmus and of cerebellar incoordination from the tumor and the way in which this part of the brain tolerated the operation confer special interest on the case.

83. **Non-Operative Treatment of Cancer.**—Theilhaber declares that the efforts of Nature to throw off malignant disease are along the lines of hyperemia, hyperleukocytosis and abnormally intense proliferation of connective-tissue cells. All the non-surgical measures which have proved useful in treatment of cancer have an action in one or more of these directions.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 22, XLIII, No. 8, pp. 225-256

84 Treatment of Third Stage of Labor. (Zur Behandlung der Nachgeburtsperiode.) K. Reber.

85 *Varicella in Adults. C. Staeubli.

85. **Chicken-Pox in Adults.**—Staeubli had two young men, brothers, in his charge on account of pleurisy and influenza. They both were confined to their room and in bed most of the time from December 22 to January 17, when one complained of headache and the other of cold feet as they were convalescing from their other troubles. Other symptoms developed suggesting small-pox. One of the young men then developed a typical varicella eruption, and the disease was also unmistakably varicella in the other patient but the diagnosis would certainly have been variola in this case if it had not been for the attending circumstances and the small numbers of leukocytes. With variola there is almost invariably high leukocytosis. The two young men had been shut in for so long that infection could have been only by indirect means, possibly by the intermediation of more than one person. Staeubli had had no varicella patients for some time before and during his care of these patients. The rapid recovery confirmed the diagnosis.

Deutsche medizinische Wochenschrift, Berlin

February 27, XXXIX, No. 9, pp. 393-440

86 Antimony in Spirochete and Trypanosome Disease. (Die chemotherapeutische Wirkung von organischen Antimonpräparaten bei Spirochäten- und Trypanosomenkrankheiten.) P. Uhlenhuth, P. Mulzer and G. Hügel.

87 Pharmacologic Study of Opium; Its Elements and Its Substitutes. J. Pal.
88 *Thrombosis of Splenic Vein. (Milzvenenthrombose mit tödlicher Magenblutung.) C. A. Ewald.
89 Fistula Between Bronchus and Esophagus with Aortic Aneurysm. G. Doiner.
90 Action of Hormonal. (Experimentelle und klinische Beiträge zur Kenntnis der Hormonalwirkung.) P. Sackur.
91 *Influence of Iodid Medication on Phagocytosis of Tubercle Bacilli in the Sputum. D. Rothschild.
92 Sources of Error in Wassermann Reaction. (Feber "eigenlösende" Eigenschaften des Meerschweinchenserums und dadurch bedingte Fehlerquellen der Wa.R.) C. Stern.
93 Combined Treatment of Syphilis. G. Stümpke.
94 Salvarsan in Otiatry. J. Lang.
95 *Findings with the Duodenal Catheter in Infants. (Untersuchungen über Pylorospasmus und Pankreasfermente beim Säugling vermittels eines einfachen Duodenalkatheters.) A. F. Hess.
96 Development and Prevention of Hirschsprung's Disease. O. Meyer.
97 Relapsing Fever in Persia. (Das Rückfallfieber in Persien.) E. Dschunkowsky.

88. Fatal Gastric Hemorrhage with Thrombosis of the Splenic Vein.—Ewald's patient was a previously healthy man of 48. The only pathologic antecedent was a seventeen weeks' attack of articular rheumatism, twenty years before. He noticed that a tumor was developing in the left upper abdomen and after nine months he entered the clinic on this account, although the tumor caused no disturbance except slight oppression after relatively small meals. The hard tumor was evidently in the spleen but there was no trace of leukemia, anemia, ascites or jaundice. While an exploratory laparotomy was being considered, the man died from a sudden parenchymatous hemorrhage from the stomach; in less than half an hour 1,240 c.c. of fresh red blood poured out of the stomach and another hemorrhage followed in the night. There was no pain and the heart sounds were pure. Necropsy showed obliterating phlebitis of part of the portal vein and thrombosis, with chronic stasis and hyperplasia of the spleen. The case is unique in that the hemorrhage occurred so suddenly and without exciting cause, nothing being found in the stomach to suggest a varix.

91. Influence of Iodin on the Tubercle Bacilli in the Sputum.—Rothschild has made a practice for some years of giving a little potassium iodid in cases suspicious of tuberculosis in order to increase the amount of sputum. He regards this diagnostic measure as much less harmful than injection of tuberculin, while the tubercle bacilli swept into the sputum are more convincing than the best radiogram. At the same time he admits that to induce catarrh in a lung suspected of tuberculosis and thus more sensitive than a sound lung is not always entirely safe. He has long noticed that in the sputum obtained in this way an unusual number of the tubercle bacilli are incorporated in the leukocytes. It seems evident that the iodin medication promotes phagocytosis and that this phagocytosis in the sputum is an important guide to the prognosis of pulmonary tuberculosis. In the cases with toxemia, the bacilli are not found incorporated in the corpuscles. In advanced cases with secondary infection the bacilli in the corpuscles are in a more or less mutilated condition. Instructive information can thus be obtained by administration of iodin in this way, especially when ten specimens of sputum are examined and at least thirty fields are counted. In his study of cases in which before the administration of the iodin tubercle bacilli were found both inside and outside of the corpuscles, the number of phagocyted bacilli increased in 70 per cent.; in 20 per cent. by the end of two months all the bacilli were found thus incorporated. In the other group of cases in which no phagocyted bacilli could be found previous to the administration of the iodin, phagocytosis was evident later in two of the twelve cases. The effect of the iodin medication thus approximated that of tuberculin. In all the cases he was impressed with the increase in the number of lymphocytes after the iodin medication and that the cases with more pronounced phagocytosis seemed to run a more favorable course. The Italians have long lauded the action of iodin in tuberculosis; some have reported a favorable influence on the opsonins from it. Rothschild is well aware of the danger inherent in iodin medication in tuberculosis on account of the possible pathologic condition of the thyroid—the frequent combination of Basedow symptoms and pulmonary tuberculosis is more than a mere coincidence. But at the same time he declares that iodid medication, possibly in combination with tuberculin, must be credited with a highly specific influence in rendering harmless the tubercle bacilli in the infected organism when the iodid is given prudently, under constant supervision and control.

95. Duodenal Catheter for Infants.—Hess' work in this line is familiar to our readers. Compare with abstracts in THE JOURNAL, 1912, lviii, 892 and 1997.

Deutsche Zeitschrift für Chirurgie, Leipsic

February, CXXI, Nos. 1-2, pp. 1-196

98 Causes of Outward Bending of the Ankle and Flat-Foot. (Ursachen des Knick- und Plattfusses.) P. Ewald.
99 *Gastric Crises in Tabes. A. Cade and R. Leriche.
100 Extension by Bardenheuer's Technic versus Steinmann's Nail Technic for Fracture. O. Grune.
101 Internal Fistulas after Gastro-Enterostomy. (Jejunumcolon- und Magencolonfistel nach Gastroenterostomie.) E. Polya.
102 Bullet Passes Through Brain Without Apparent Injury. (Grosshirn-Schussverletzung durch ein 7-mm.-Geschoss ohne erhebliche Folgen.) C. Lauenstein.
103 Rupture of Bladder from Contusion; Recovery after Suture. (Quetschung des Leibes durch Fahrstuhl. Intraperitoneale Zerreissung der Blase. Laparotomie. Naht der Blase. Heilung.) C. Lauenstein.
104 Restoration of Entire Cheek. (Zur totalen Meloplastik.) G. Lerda.
105 Operative Correction of Fractures Healed in Abnormal Position. (Die blutige Stellung schlecht stehender Frakturen.) W. Keppler.
106 Restoration of Clavicle. (Kleidoplastik aus der Spina scapulae.) Molineus.

99. Gastric Crises.—Cade and Leriche describe the gastric crises in tabes from the clinical point of view and also discuss the pathogenesis and treatment. They say that gastric crises usually develop in the initial stage of the tabes but ten or twenty years have been known to elapse before other symptoms developed outside of the gastro-intestinal disturbances. As a rule, however, other symptoms soon accompany the crises. Lumbar puncture has relieved the patients in some cases but the writers have never obtained any benefit from it, and Mouriquand has recently reported a case of threatening syncope after withdrawal of 25 c.c. of fluid. In prophylaxis, hygiene of the diet, avoidance of alcohol and of medicinal injections are recommended, with cauterization with the actual cautery along the spine. In inveterate cases, operative treatment should be considered, and for this there are several methods. The history of each is given in turn with the results to date: resection of the posterior roots (Foerster); extraction of the intercostal nerves (Franke); stretching the solar plexus (Jaboulay), and bilateral vagotomy (Exner). The final conclusions are that it is necessary to distinguish between vagus and sympathetic gastric crises. If the attack is extremely painful, with much vomiting, tachycardia, dropping of pulse-beats and disturbances in the larynx, the vagus is probably responsible. This must be tested. But these cases are not so frequent as the sympathetic crises. In the latter case, begin with the simplest operative measures, leaving the major procedures for the last resort. The simplest measure is König's method of injecting 100 c.c. of a 0.5 per cent. solution of novocain into the muscles of the back on each side of the line of the spinous processes. It might be possible to use alcohol instead of an anesthetic and thus realize a permanent effect, treating the tendency to gastric crises like a facial neuralgia. If this fails, the Franke operation might be tried, pulling out the fifth to seventh intercostal nerves, or the Jaboulay method of stretching the solar plexus. (In the case reported by Cotte this relieved the patient for two years but then the crises returned. Leriche did not obtain any benefit in the one case in which he has applied the measure.) If all these fail or the crises recur, the Foerster operation must be considered and Guleke's epidural modification is recommended, and the severing of seven roots on each side if possible. At the same time, Cade and Leriche believe that with a good general condition and very severe crises involving also the intestines they would proceed at once without further delay to section of the posterior spinal roots in a given case.

Medizinische Klinik, Berlin

February 23, IX, No. 8, pp. 281-318 and Supplement

107 *Treatment of Weakness of the Bladder in Women. (Zur Behandlung der Blasenschwäche des Weibes.) H. Fehling.
108 Pathology of the Throat and its Importance for the Organism as a Whole. (Der Waldeyersche Rachenring und der Organismus.) O. Piffl.
109 *Non-Operative Treatment of Club-Foot. (Die unblutige Behandlung des Klumpfusses.) H. H. Dreesmann.
110 *Influence of Gelatin on Coagulation. (Zur Frage der gerinnungsfördernden Wirkung der Gelatine.) E. Ruediger.
111 Hands Off the Uterus in Third Stage of Labor. (Ueber die Ausräumung von Placentarresten.) K. Himmelheber.
112 Differentiation of Scarlet Fever by Urobilinogen in the Urine. (Ehrlichs Amidobenzaldehydreaktion im Harne bei Scharlach und scharlachähnlichen Exanthemen.) O. Hesse.
113 Prophylaxis of Diphtheria. F. Schanz.
114 Jaundice of the Newly Born. (Zur Kenntnis des Icterus neonatorum.) E. Maliwa.
115 *Tuberculosis and Pregnancy. O. Hoehne.
116 *Urogenital Tuberculosis in Women. O. Hoehne.
117 *Prophylaxis of Placenta Praevia. O. Hoehne.

107. **Treatment of Weakness of the Bladder in Women.**—Fehling does not mean by this complete paralysis of the bladder but only partial incontinence of the bladder sphincter, occurring during coughing, sneezing, laughing, etc. It is most common in women who have borne children, and he warns that it is necessary to guard against it after delivery. The parturients should be warned not to strain in urinating when there is difficulty in micturition, and they should not be allowed to sit up to urinate at first. In older women, astringent vaginal douches or pessaries may be useful, or application of electricity. Cathelin's epidural injections may prove useful, injecting from 10 to 40 c.c. of salt solution to act suddenly on the sacral nerve fibers. Fehling discusses further the various operative measures that might be applied. He slit the urethra its entire length and excised a strip in one case but without permanent success. Albarran's technic seems preferable; a fold is taken up in the urethra its entire length and sutured to reduce the lumen, but Fehling has been most pleased with the results of plication of the bladder itself. In five cases he supplemented this technic with a support made by drawing down the rear surface of the uterus to form a cushion on which the bladder rests. In three cases the operation was a complete success, but disturbances returned in two cases after two or three months in connection with some physical strain.

109. **Non-Operative Treatment of Club-Foot.**—Dreesmann gives an illustrated description of the metal sole and elastic harness fitting over the opposite shoulder with which he has corrected club-foot in young infants.

110. **Gelatin to Promote Coagulation of the Blood.**—Ruediger reports a case which confirms the efficiency of gelatin by the mouth in promoting the coagulability of the blood. The patient was a man of 55 who had had for years a very large aneurysm of the arch of the aorta. To apply the Wassermann test blood was drawn but it coagulated too soon for the test or even for determination of the hemoglobin content and blood-count. It coagulated in the capillary tube before it was half full and no tests could be applied to the blood on this account. This remarkable coagulating property was explained by the fact that a physician had ordered the man eighteen months before to eat gelatin freely, and since then he had taken daily from 30 to 40 gm. of gelatin in lemonade. He had thus ingested about 20 kilograms of gelatin in eighteen months. The case teaches that the internal administration of gelatin may be of prophylactic importance as a preliminary to operations and childbirths or in treatment of recurring hemorrhages. To obtain the desired result prolonged administration is necessary; it is of little use to give gelatin to arrest a sudden hemorrhage. In this case better results can be anticipated from von den Velden's intravenous injection of 3 or 5 c.c. of a 10 per cent. sterile salt solution. This acts promptly and well but no fluid must be left near the vein as otherwise gangrene may follow. The salt solution may be supplemented by subcutaneous and oral administration of gelatin.

115-117. **Some Gynecologic Problems.**—Hoehne discusses a number of the most pressing problems in the sphere of obstetrics and gynecology. He concludes his study of tuberculosis in connection with pregnancy by saying that an extreme standpoint is unwise, either on the radical or conservative side. The internist and obstetrician must work together to determine indications in each individual case. When active progressive pulmonary tuberculosis and especially laryngeal tuberculosis suggest the necessity for interrupting the pregnancy, the woman should be rendered sterile thereafter and should be given a course of treatment in a sanatorium as a necessary adjuvant. He says of tuberculosis of the urogenital apparatus in women that an early diagnosis is the main thing. Stoeckel goes so far as to say that a failure to diagnose tuberculosis of the urinary system until bilateral renal tuberculosis has developed is as bad as for a general practitioner to let a cancer of the uterus go on to an inoperable stage. The diagnosis may require mastery of cystoscopy, catheterization of the ureters and inoculation of guinea-pigs by the latest improved bacteriologic methods. Gauss thinks that no one should omit the indigo-carmin test and roentgenoscopy. Total obliteration of the ureter is regarded as of inevitably tuberculous origin and hence a reliable sign of tuberculosis of the kidney.

In discussing abnormal implantation of the placenta, Hoehne calls attention to the peculiarly intense ciliary movements which he has found an invariable accompaniment of chronic hyperplastic conditions in the mucosa of the uterus. It is possible that this pathologic extent and intensity of the waves of contraction in the cilia have some causal connection with abnormal implantation of the ovum in the lower parts of the uterus. He found this most marked in four of five placenta praevia cases. His practical conclusion is that the uterus should be curetted after involution in every placenta praevia case. In this way it might be possible to put an end to the abnormally exaggerated movements of the ciliated cells of the epithelium.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXV, No. 5, pp. 797-963. Last indexed February 15, p. 561

118 *Pneumococcus Sepsis from Gall-Stones. (Ueber Pneumokokkensepsis und Pneumokokkenmeningitis im Anschluss an kalkulöse purulente Cholecystitis und abszedierende Cholangitis.) J. Severin.
119 *Goiter. (Kritische und experimentelle Untersuchungen über die kropfigen Erkrankungen der Schilddrüse.) B. Breitner.
120 *Serodiagnosis of Cancer. (Zur Serumdiagnose maligner Tumoren.—Kellingsche hämolytische Proben, Ascolische Meiostagminreaktion und Wassermannsche Reaktion.) A. Brüggemann.
121 *Further Research on Hormonal. R. Mohr and R. Dittler.
122 The Importance of the Bronchi from the Mechanical Standpoint. M. Jansen.
123 Excessive Irritability of the Nerves in Tetany. W. G. MacCallum (New York).

118. **Pneumococcus Sepsis Following Gall-Stone Trouble.**—Severin gives the details of two cases of pneumococcus sepsis and meningitis in women of 53 and 54 who had long suffered from attacks of gall-stone colic. Fever and jaundice developed first but there was nothing pathologic to be detected in the ears, throat or lungs; the liver was much enlarged and tender and the spleen enlarged. The fever was intermittent and sometimes preceded by chills. Jaundice and leukocytosis of 30,000 were accompanied by pneumococci in the blood. Necropsy confirmed the diagnosis of suppurative cholecystitis and cholangitis with abscesses in the liver, in the course of which the pneumococcus sepsis had developed with the fatal meningitis after a few days. Pneumococci were found in the gall-bladder pus in one case with staphylococci and streptococci. It is remarkable that the pneumococcus was the only one of the trio to make its way into the blood and induce the general sepsis. In the total seven cases of pneumococcus infection he has been able to compile from the literature, secondary pneumococcus meningitis developed in four instances. The discovery of pneumococci in the blood with cholelithiasis is therefore a bad omen in comparison to pneumococcus bacteremia in pneumonia.

119. **Goiter.**—Breitner is convinced that colloid in the goitrous thyroid gland is a sign or cause of insufficient functioning of the gland while excessive functioning occurs only in the absence of colloid. His research on the interrelations between the internal secretions confirms the great importance of the serologic side of the problems connected with the thyroid, as

he shows by graphic formulas. He declares that goiter is increasing in frequency, as also adenoma of the breast.

120. **Serodiagnosis of Cancer.**—Brüggemann tabulates the findings with Kelling's hemolytic test in 175 cases and Ascoli's meiostagmin reaction in seventy cases, and states that in forty cases of cancer both tests were positive in twelve instances; the Ascoli alone in nine, and the Kelling alone in eight. In one case of non-malignant fibroma of the breast, both tests were negative. In one case of gastric cancer both tests were positive but after resection the Kelling test was negative. Of the forty cases of cancer, positive reactions were obtained in 72.5 per cent. In twenty-nine patients with other affections each test was positive only once and in different cases. The Wassermann reaction was negative in all the cancer cases in non-syphilitics. He regrets that the technic of the meiostagmin reaction is still too complicated for general use. If the extracts required could be made more durable, this would be essential progress. (The technics for both the Kelling and Ascoli tests have been already described in these columns, abstract 107, July 20, 1912, p. 231, and May 28, 1910, p. 1790.)

121. **Hormonal.**—Dittler and Mohr report further research which confirms their previous statements that the peristalsis-inducing action is merely the result of the drop in blood-pressure caused by the hormonal. When the injection is made very slowly it does not induce peristalsis in animals. They found that injection of chloral had a pronounced effect in inducing intestinal peristalsis in rabbits, even in doses of less than 0.05 gm. per kilogram. This effect never failed, and it is possible that some of the action attributed to hormonal may have been due to the preliminary injection of chloral in the experimental tests of the new remedy.

Münchener medizinische Wochenschrift

February 25, LX, No. 8, pp. 393-448

124 Arguments against the Drinking-Water Origin of Goiter. (Gegen die Wasserätiologie des Kropfes und des Kretinismus.) A. Kutschera.
125 Combined Drug and Serotherapy in Experimental Pneumococcus Infection. K. E. Boehncke.
126 Tubercle Bacilli in the Blood. (Vorkommen von Tuberkelbazillen im strömenden Blut.) E. Querner and E. Rosenberg.
127 *Sugar as a Local Disinfectant. (Wundbehandlung mit Zucker.) G. Magnus.
128 Advantages of Venesection in Polycythemia; Three Cases. A. Wagner.
129 Roasted Wheat Grains in Diet for Constipation, Neurasthenia, Heart Disease, etc. (Röstweizen als Diätetikum.) Hirschkowitz.
130 Perforation of Tuberculous Lymph-Node into a Bronchus; Recovery. F. Oeri.
131 Serodiagnosis of Pregnancy. (Ueber Serumfermentwirkung bei Schwangeren und Tumorkranken.) E. Abderhalden.
132 Radiotherapy of Deep-Seated Cancers. (Zur Frage der Beeinflussbarkeit tiefliegender Krebse durch strahlende Energie.) Aschoff, B. Krönig and Gauss. Commenced in No. 7.

127. **Sugar as an Antiseptic.**—Magnus has been using sugar in substance in treatment of wounds during the last three months with very promising results. It combats infection and putrefaction, has a solvent action on fibrin and stimulates secretion by the intense osmotic changes induced, thus rinsing out the wound with serum from within outward—all this produces conditions extremely favorable for healing, cleansing, deodorizing and promotion of healthy granulation. The tolerance of the body for sugar solutions is remarkable. Magnus injected a 10 per cent. solution of sugar subcutaneously into his own arm and the same amount of physiologic salt solution in the other arm and could see no difference between them in regard to sensation or absorption. His experiences confirm Kuhn's recent endorsement of sugar in the treatment of peritonitis. The fibrin-dissolving action of sugar is striking. Patients with leg ulcers were particularly impressed with the way the sore cleaned up under the influence of the sugar.

Therapie der Gegenwart, Berlin

March, LIV, No. 3, pp. 97-144

133 *The Seashore from the Therapeutic Standpoint. (Die Heilwirkung der deutschen Seebäder.) L. Huismans.
134 *Inadequate Respiration in the Anemic and Means to Improve It. (Zur Behandlung der herabgesetzten Atmungsenergie bei Anämischen.) F. Sippell
135 *Loss of Appetite. (Therapie der Appetitlosigkeit.) W. Sternberg.
136 *Early Forms of Infantile Scorbutus. (Frühformen der Möller-Barlowschen Krankheit und ihre Behandlung.) O. Meyer.
137 Ileus from Helminths. (Fall von Darmverschluss durch Ascariden.) W. Ruland.
138 Serotherapy in Tuberculosis. (Die spezifische Tuberculosetherapie nach Maragliano.) P. Schrumpf.

133. **The Seashore in Therapeutics.**—Huismans discusses the various elements which go to make up the general effect on the health of a stay at the seashore and the contra-indications. The sea has sovereign means to eradicate the conditions predisposing to morbidity. The various factors should be utilized more than hitherto—in summer, the sunshine, the sea air and the bathing; in winter, sun baths with indoor baths in warm sea water.

134. **The Diminished Breathing Capacity in Anemia.**—Sippell expresses surprise that so few pay attention to the superficial nature of the breathing in anemia. The physical depression and weakness of the muscles entailed by the anemia are felt particularly in the muscles involved in respiration. The inadequate ventilation of the lung increases the tendency to anemia, and the lungs suffer directly from the lack of normal expansion. In examining the anemic it is extremely important to investigate the breathing capacity and to institute deep breathing exercises. He has his patients stand by an open window and take from ten to fifteen breaths as deep as possible, warning them beforehand that it may bring vertigo. These exercises are done in the early morning, and again in the afternoon and evening, especially when the patient can be out-of-doors and reclining. During a walk, at each hundred steps he should stop and take ten or fifteen deep inspirations. A cane passed through the arms bent backward helps to expand the chest. These deep breathing exercises are also useful after pneumonia or pleurisy or any wasting disease, but neglect of the reduced breathing capacity is particularly dangerous in the anemic.

135. **Loss of Appetite.**—Sternberg thinks that the cachexia of cancer is due in large part to the loss of appetite, and that in this as in other conditions with loss of appetite much can be done by fostering the appetite. The artificial food preparations which are commended by many in case of loss of appetite are either tasteless or have a disagreeable taste or smell. The one great point in treatment of loss of appetite, second only to removal of the cause, is to prepare the food in such a way that it "tastes good." When it "tastes good" appetite returns, and he has long preached that the refinements of the culinary art practiced by the chefs in the homes of the very wealthy should be applied in the diet of the sick and wherever there is a tendency to loss of appetite.

136. **Early Forms of Infantile Scorbutus.**—Meyer relates three typical cases to show that when other causes for the non-thriving of infants can be excluded, the trouble may prove to be an unsuspected tendency to infantile scorbutus. The improvement under change of the milk and a little fresh fruit or vegetables confirms the assumption of the underlying Möller-Barlow disease.

Zeitschrift für klinische Medizin, Berlin

LXXVII, Nos. 1-2, pp. 1-144. Last indexed February 8, p. 488

139 Technic for Removing Albumin and Determining the Residual Nitrogen in Organic Fluids. (Ueber Enteiweissung und Reststickstoffbestimmung des Blutes und seröser Flüssigkeiten mittels Uranilazetats.) A. Oszacki.
140 Amino-Acids in the Urine in Health and Disease. (Ueber Eiweissstoffwechselstörungen bei Diabetes mellitus.) A. Galambos and B. Tausz.
141 Digestion of Starches. I and II. (Untersuchungen über die Verdauung der Amylazeen.) R. Ehrmann and H. Wolff.
142 *Schmidt's Nuclei Test of Pancreas Functioning. (Verwendbarkeit der Schmidtschen Kernprobe zur Pankreasfunktionsprüfung.) H. Fronzig.
143 Familial Neuromyxofibrosarcomatosis. Four Cases. A. Mathies.
144 Study of the Blood-Pressure. (Zur Blutdruckmessung.) D. de Vries Reilingh.
145 *Orthostatic Albuminuria. V. Gomolitsky.
146 The Cammidge Reaction. H. Karas.
147 Effect of General Anesthetics on Composition of the Blood. (Einfluss der Chloroform-, Aether- und Misch-Narkose auf die physikalisch-chemische Beschaffenheit des Blutes.) C. Oliva.

142. **Schmidt's Nuclei Test for Pancreas Functioning.**—Fronzig discusses why opinions differ so widely in respect to the value of this test. He thinks its theoretical basis has been misunderstood and he describes extensive research which has confirmed the assumption that neither the gastric juice nor the intestinal juice, with or without bile, is capable of digesting the nuclei contained in meat. Of all the organic fluids, the pancreatic juice alone is able to dissolve the nuclei. Bases even in very weak concentration are able to dissolve the nuclei but these bases or other substances formed in the process of putrefaction are not produced in sufficient amounts in less than ninety-six hours to destroy the nuclei. The nuclei test is therefore based on a sure foundation. He has simplified the technic by using dried blood from frogs or fowls, as this contains nuclei, instead of the small pieces of meat, and the results are the same while the technic is simpler. He used goose blood defibrinated, washed in physiologic salt solution several times and dried with addition of alcohol on the water-bath. He then ground the blood-corpuscles, mixed this blood dust to a third with barium sulphate, and gave several tablespoonsful of the mixture to normal patients who had eaten no meat for twenty-four hours. The blood mixture was incorporated with their food. Examination of the stools showed that the nuclei in the isolated blood-corpuscles had been entirely digested. The pancreatin seems to be the element involved in this destruction of the nuclei.

145. **Orthostatic Albuminuria.**—Gomolitsky lightly compressed, massaged or shook the sagging kidney in thirty-five patients with nephroptosis. He also tested the effect of varying positions in eighteen patients with scarlet fever and twenty-seven with various other acute infections. The results of this extensive research are tabulated and compared. They show that traumatic injury plays no part in the causation of orthostatic albuminuria. It is rare with nephroptosis. It does not develop unless there is some functional impairment of the kidney, inherited or the consequence of some infection weakening the organism at the period of its most intensive growth. Injury of the kidney from toxic elements and a temporary overstrain from the erect position, which makes greater demands on the energy of the nerves and muscles—these factors are sufficient to explain orthostatic albuminuria without incriminating lordosis as the main causal element.

Zentralblatt für Chirurgie, Leipsic

March 1, XL, No. 9, pp. 297-336

148 *Treatment of Incipient Gangrene. M. Borchardt.
149 *Technic for Excluding Pylorus. (Pylorusausschaltung mittels Schnur und nicht mittels Fadens.) G. Parlavecchio.
150 Technic for Saline Infusion. (Kochsalzinfusionen.) F. Kuhn.

148. **Treatment of Incipient Gangrene.**—Borchardt reports a case in which a man of 54 with severe arteriosclerosis required amputation of the thigh, after several operations below, on account of progressive gangrene. Convalescence was retarded by thrombosis and gastro-intestinal hemorrhages. Then the other foot developed symptoms in the same sequence as on the foot first affected with gangrene, namely, pains in the toes, heaviness in the limb and blue discoloration. As the usual measures, raising the limb, heat, etc., gave no relief, Borchardt applied alternating hot and cold baths to the knee. Two tall pails were filled with water, 95 F. in one and cold water in the other. The leg was placed in each pail for a few seconds and then changed to the other pail, the water reaching to the knee. This was done for thirty times up to fifty times at a sitting and gradually the water was used at a higher temperature and the cold water was drawn directly from the faucet. These baths were taken morning and evening for weeks. The result was surprising; the pains promptly disappeared and the leg always looked red and warm during the bath. The hyperemia was much more pronounced than in a hot bath alone. The patient has continued these baths to date, about fifteen months, and the circulation in the limb is growing progressively better while gangrene has not developed. The relief of pain was pronounced in some other cases of the kind, although the gangrene was too far advanced to be arrested. These alternating baths seem to be indicated in intermittent limping which sometimes runs into gangrene. They favor the development of a collateral circulation and improve the blood-supply even with existing gangrene. The degree of hyperemia also shows where to amputate. The systematic use of these alternating baths trains the vessels much better than superheated air alone.

149. **Technic for Exclusion of the Pylorus.**—Parlavecchio has now applied in five clinical cases the technic he advocates based on experimental research. Instead of a thread or catgut, he winds a cotton tape, about 1 cm. wide, or a threefold strip of gauze around the antrum of the pylorus, suturing the ends instead of tying this inelastic ligature. He is very careful not to injure the tissues in any way or strangulate them. He concludes by drawing up the serosa over it, suturing serosa to serosa, and then proceeds to the vertical, posterior gastro-enterostomy. He describes the advantages of this technic and answers the objections that have been made to it.

Zentralblatt für Gynäkologie, Leipsic

March 1, XXXVII, No. 9, pp. 297-328

151 *Serotherapy of Eclampsia. (Ueber die Heilung der Eklampsie durch intralumbale Injektion von normalem Schwangerenserum.) A. Mayer.
152 *Serology of Eclampsia. (Zur Eklampsiefrage.) B. Stange.
153 *Treatment of Eclampsia. A. J. Jarzew and Uthmöller.
154 Inefficacy of Serotherapy for Uncontrollable Vomiting of Pregnancy. (Normales Schwangerenserum bei unstillbarem Erbrechen der Schwangeren.) W. Rubeska.

151. **Serotherapy of Eclampsia.**—Mayer reported in 1911 a severe case of eclampsia with recovery after intravenous injection of serum from a normal pregnant woman. He has applied this serotherapy in two other cases recently and was much impressed with the unmistakable benefit derived. One was a new-born child with severe convulsions, the mother having a mild type of eclampsia. The child seemed moribund when 5 c.c. of spinal fluid was withdrawn and an equal amount of serum from the blood of a pregnant woman was injected into the spinal canal. The general improvement was striking; the cyanosis ceased almost completely and there were only a few rudimentary convulsions thereafter. The child died later of heart weakness and the woman with severe eclampsia also died. Her liver was found extremely pathologic. In these cases the serotherapy evidently came too late, but all were impressed by the prompt improvement from the injection.

152. **Serology of Eclampsia.**—Stange has applied Abderhalden's dialysis serologic test and found that the reaction was peculiarly intense with the eclampsia placenta. His findings parallel Doi's on the blood picture in eclampsia and pregnancy kidney, and he agrees with Doi that the changes in the blood in eclampsia are analogous to those of a normal pregnancy, only they occur in such intensity as to be injurious.

153. **Cause and Treatment of Eclampsia.**—Jarzew presents evidence to sustain the assumption that eclampsia is a disease caused by accumulation of albuminoids in the blood (globulins). This accumulation is the result of defective functioning of the placenta with an incompetent liver. The excess of globulins in the blood increases its viscosity and thus the arterial system becomes engorged as the passage through the capillaries is rendered more difficult. Hyperemia in the brain follows and the cerebrospinal fluid accumulates, increasing the intracranial pressure and thus bringing on the convulsions. Superposed on these physical-mechanical disturbances, signs of toxemia soon follow from the overloading of the blood with the products of the incomplete oxidation of the albuminoids. Treatment should combat the cause with sedatives, delivery to remove the placenta, and venesection with or without saline infusion.

Uthmöller reports eight cases of eclampsia in which he withdrew large amounts of blood, up to 1,250 c.c., and all the patients promptly recovered with one exception, the eclampsia in this case having been complicated with a heart defect. The immediate benefit was striking in every case. He does not advocate this venesection before delivery but aims to deliver the woman as promptly as possible, following then with morphin and chloral according to Stroganoff's technic.

Zentralblatt für innere Medizin, Leipsic

March 1, XXXIV, No. 9, pp. 209-240

155 *Frequency of Septicemia in Infectious Diseases. (Septikämie als häufiger Gast in der Familie der übrigen Infektionskrankheiten.) N. T. Golubow.

155. **Septicemia.**—Golubow states that he has encountered twenty cases of sepsis in the last ten years with a fatal termination in seven. He believes that septicemia is more frequent than is generally recognized and that it often escapes recognition. He urges general practitioners to make a special study of the mild cases of non-surgical sepsis, believing that this would throw light on many obscure morbid conditions. It is possible that Hodgkin's disease and other purpura affections, muscular rheumatism, etc., are often connected with some septic process. In seven of his twenty cases an infectious sore throat was evidently the cause of the sepsis. Differentiation is based on bacteriologic and other tests and exclusion of other possible causes. He was able to trace the sepsis to the primary process in all but two of his twenty cases. Influenza, malaria or typhoid had generally been diagnosed. One patient, a woman of 50, had had febrile temperature recurring several times during the day for a period of six weeks. Examination showed nothing suggesting influenza, malaria or a local infectious process, but Golubow insisted that there must be some septic infection somewhere in the body. The patient was kept under observation and after two or three days an extremely severe streptococcus sore throat developed, with signs of progressive sepsis and a hemorrhagic vesicular exanthem and the patient soon died. This case confirms the possibility of a protracted intermittent streptococcus infection. In another case a man of 55 developed the clinical picture of pernicious anemia which proved fatal eight months after the first symptoms which had been those of sepsis from mixed infection of the upper air passages; pneumococci and streptococci and influenza bacilli were found constantly in the sputum and the catarrhal affection became later accompanied by mild nephritis. Golubow is convinced that in many cases pernicious anemia is the consequence of some mild cryptogenetic chronic sepsis. He insists that there is reason to assume that the still unknown hemolytic toxin causing pernicious anemia is of bacterial origin.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 20, XXXIV, No. 22, pp. 225-232

156 Infiltration Anesthesia. (Studio dell'anestesia locale da infiltrazione.) P. Pozzato.

February 23, No. 24, pp. 249-256

157 *Experiences with Spinal Anesthesia. (Considerazioni sopra 924 casi di rachistovainizzazione.) P. Bedeschi.

157. **Spinal Anesthesia.**—Bedeschi has used stovain for spinal anesthesia in 924 cases and reports two cases of serious collapse. One of these patients was a youth who had been operated on for fistula of the anus; the other was a woman of 45 requiring fixation of the uterus. Under an hour or more of artificial respiration, saline infusion and rubbing the heart region with ice the patients were revived but the boy had an intermittent pulse and bradycardia for eight days afterward. There was postoperative retention of urine in 10 per cent. of the cases and anal incontinence in 30 per cent. of all the patients, stools passing sometimes while still on the table, in other cases as the patients were being replaced in bed or their position was otherwise changed. There was severe paralysis in two cases, the paralysis affecting the legs, the anus and bladder sphincter. The paralysis of the sphincters subsided after ten days in one case and thirty-five in the other. In the latter case there was cystitis and severe decubitus burrowing down to the sacral vertebrae. Four months after the spinal anesthesia these patients were able to stand and walk but complained of great weakness in the legs and sensory disturbances were still evident. Bedeschi states in conclusion that the by-effects observed have discouraged the further use of stovain in the clinic at Ravenna where he is assistant surgeon. It has been discontinued except possibly for operations requiring only a very small amount of an anesthetic.

Policlinico, Rome

February 23, XX, No. 8, pp. 261-296

158 Injury of the Heart from Sudden Physical Effort. F. Santori.

February, Surgical Section No. 2, pp. 49-96

159 Resection of Three-Fourths of Jaw and Mode of Repair. (Resezione di tre quarti della mandibola per via orale e nuovo metodo di prostesi mandibolare definitiva.) R. Alessandri and A. Chiavaro.

160 Hernia of the Bladder. (Contributo allo studio dell'ernia della vescica.) F. Putzu.

161 *Primary Sarcomas of Muscles. (Sarcoma muscolare primitivo e miomectomia.) M. Fasano.

161. **Primary Sarcomas in Muscles.**—Fasano reviews the history of primary sarcoma in muscle tissue and adds a case from his own practice to the few on record. Excision far into sound tissue has given a number of long survivals, amounting practically to a cure although, he remarks, it is almost impossible to expect a permanent and absolute cure from malignant disease of this nature. His patient was a boy of 10 and the tumor was in the thigh. The boy was recently reexamined after an interval of two years and found in the best of health. He had noticed the small tumor first six or seven months before the operation and during the last two months it had grown somewhat and become slightly painful at intervals.

Semana Medica, Buenos Aires

January 30, XX, No. 5, pp. 253-304

162 Biology of the Soul. (Biologia del alma.) J. Ingegnieros.

163 Prophylaxis of Tuberculosis. (El concepto actual de las tuberculosis.) J. M. Quevedo.

164 Organic Basis of the Mind. (La estructura fisica de la intelligencia y el desarrollo de su mecanismo organico.) H. Maudsley (London).

165 Linear Electrolysis for Urethral Stricture. (El valor de la electrolisis linear en el tratamiento de las estrecheces de la uretra.) A. De Garay.

166 *Sudden Death. (La muerte repentina y su profilaxis.) R. de Castro Ruiz.

167 Treatment of Digestive Disturbances. G. Granes.

168 Adulteration of Liquors. (Contribucion a la investigacion del alcohol metilico impuro en los liquidos espirituosos.) J. G. Obregon.

169 *Effects of Salvarsan on the Internal Ear. (Sobre los efectos del Salvarsan en el oido interno.) E. Botella.

166. **Prophylaxis of Sudden Death.**—Ruiz agrees with Seneca that "men do not die; they kill themselves," and he argues that it is possible so to live that the principal causes of sudden death, namely, shock, cerebral hemorrhage, syncope, coma and collapse can be warded off. The secret, he declares, is "lots of philosophy and lots of hygiene," in other words, one must know how to live and how to die. Bacchus, Venus and sluggish vital processes are responsible for sudden death in a large proportion of cases, and all of these are to a certain extent under our control.

169. **Salvarsan and the Ear.**—Botella compares five cases from his own experience with eight in the literature in which the use of salvarsan was followed by disturbances in the internal ear. He also summarizes eighty-one cases in which he examined the ears before and after salvarsan treatment. It is evident, he thinks, that the ear symptoms observed after the use of salvarsan are due to different causes in various groups of patients. In some they are evidently a Herxheimer reaction; in others aggravation of a preexisting lesion; in others there is nothing to explain them but the assumption of a direct toxic action from the salvarsan. It is evident, he states, that the drug should be given prudently and that we should seek to disabuse patients of the idea that a single dose is going to cure syphilis at one stroke. Specialist examination of the ear should never be omitted before giving salvarsan, and all patients with a recent lesion of the auditory nerve at any point should be systematically excluded from this method of treatment. In the eighty-one candidates he examined, in forty-three the ears seemed to be entirely sound and yet eight of these developed trouble in the apparatus of hearing after the salvarsan; in five the syphilis was of recent date. In four instances the disturbances were quite serious. Twenty-four other patients had a history of old trouble in the ear previous to their syphilis, but no influence from the drug was apparent either way in this group. A third group of twelve patients had developed ear disturbances after infection with syphilis, before the salvarsan had been given. His record is thus a total of nineteen cases of disturbances in the ear after injection of salvarsan. In only four were the disturbances briefly transient; in the others they were more or less serious.